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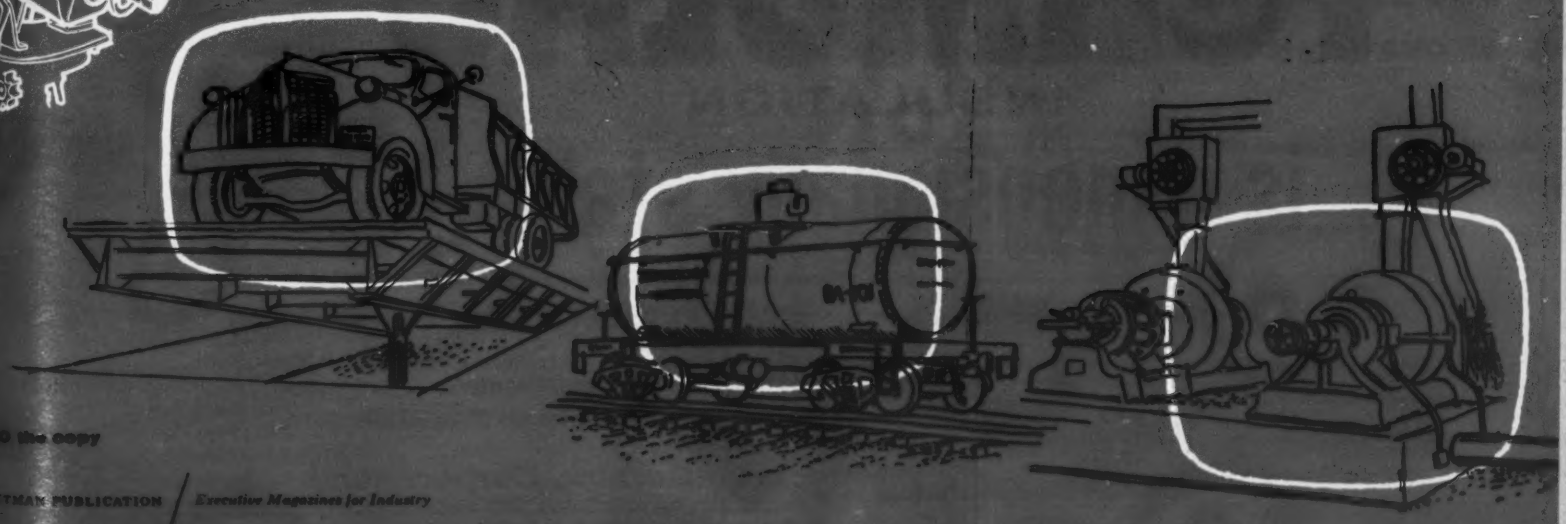

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In Canada: 57 Bloor Street West, Toronto, Ontario

That's interesting

Dark eyes

Infrared telescope allows you to see in the dark. Used in plant security systems; for microscope studies and infrared photography. The image, when focused on photocathode, is reproduced on a fluorescent screen. (Edmund Scientific Co., Barrington, N. J.)

Salt for you

An average family of four actually uses 1100 lb of salt in a year. Most of this 275 lb per capita is used in dyes, photographic materials, and other items: leather, cleaning fluid, dentrifrices. (*Better Living*, du Pont)

About dew

Research by USDA in Ohio reveals that dew may be a vital source of moisture for plants. In a year, it can total as much as 10″ water, or up to 20% of water required for crops in Midwest humid areas.

that's interesting

Kitchen calisthenics

Over 42 billion cans were opened last year. A large volume of these brought tomatoes, corn, meats to the country's dinner tables. The huge volume of tin containers breaks down to 259 per capita.

Keep off the grass — all 4,000 kinds!

That directive is misleading, for the grasses referred to are really not of the strictly lawn variety.

According to *Steelways*, official publication of the American Iron and Steel Institute, there are 4,000 varieties of grass, and the number may double in a generation.

Scientists believe they will put thousands of idle acres to work and add income and stability to farm operations.

The publication says that steel machines that plant and harvest grass will create vast changes in the land and in the economic practices of the US. The national grass crop last year was valued at more than $13 million. From it comes nearly three-fifths of our foods, many fibers and other useful products.

Fruit without pollination

An orchard specialist from the University of California reports production of fruit without pollination. Known to scientists as "parthenocarpy", the chemical short cut is not likely to compete with nature's own methods as yet. Studies indicate that some essential stimulus, necessary for fruit cell division and enlargement, is apparently lacking. Experiments are continuing in an attempt to learn more about the nature of this elusive stimulus.

Previously these researchers developed an artificial method for setting figs which is now used commercially.

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(FOOD PROCESSING PREVIEW)

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DECEMBER 1957

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Printed in the United States

For the Management Team
Published in Chicago
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VOL. 18 NO. 12

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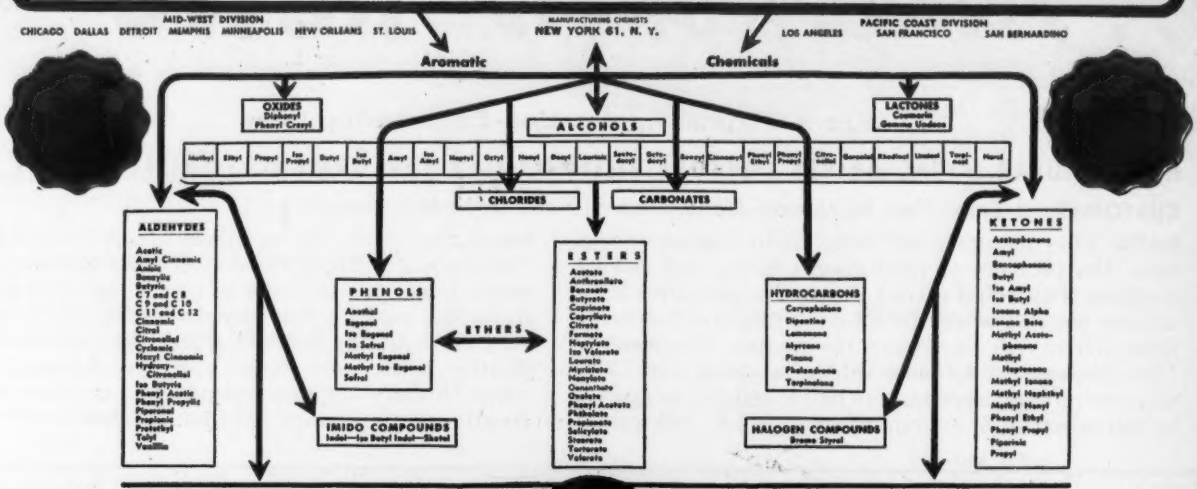

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...Fluid Power news

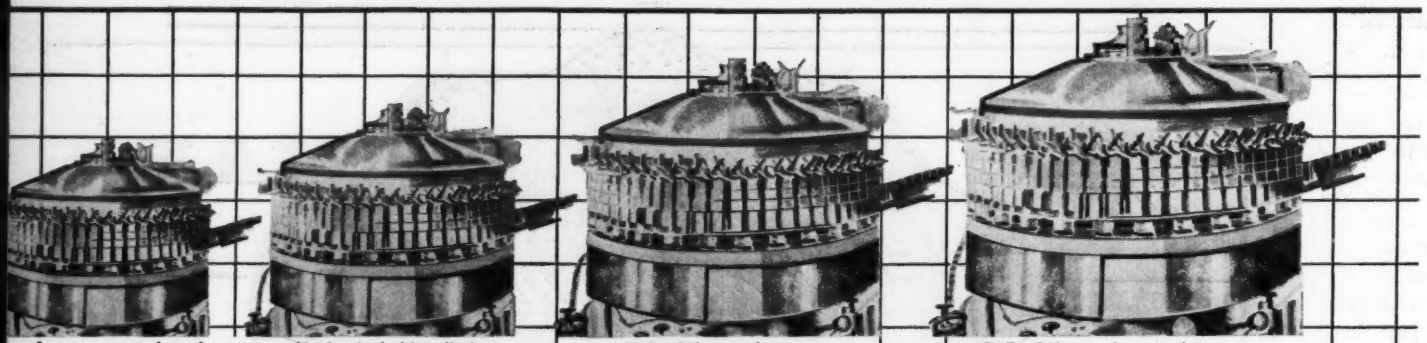
REPORT No. 11,301
HYTAC IMPROVES FILL-CLOSE PRODUCTION

From Oilgear Application-Engineering Files

HOW OILGEAR HYTAC DRIVES IMPROVE FILLER-CLOSER PERFORMANCE—TRIPLE OUTPUT

CUSTOMER: *A Large Food Machinery Manufacturer (Name withheld by request)*

DATA: This manufacturer called upon Oilgear to help solve the problem of producing a filling and closing machine that would exceed the mechanical drive limitations reached when the fill-close rate was increased from 150 to 360 12-oz cans per minute. *Summary of User Requests:* A fill-close rate of at least 425 12-oz cans per minute; accelerate to half speed in 2 seconds—to full speed in 5 seconds without jerky, jack rabbit starts that strain the equipment; reduce spillage and "deadheads"; decelerate to stop in 0.4 seconds; reduce costly losses due to under or overfilling; change speed instantly, easily—with remote control preferred; accurately hold any selected speed regardless of load or electric power variations—viscosity changes; impervious to daily sanitary washdowns; provide trouble-free, low-maintenance, continuous operation.



Average normal mechanical drive—150 12-oz cans per minute.

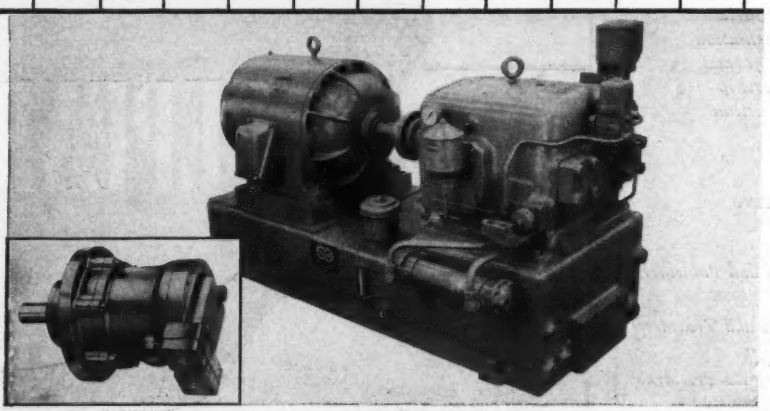
Mechanical drive limit—360 12-oz cans per minute.

1955—Oilgear heavy-duty, Size 20, Any-Speed HYTAC drive—to 600 12-oz cans per minute with improved performance.

1957—Oilgear heavy-duty, Size 35, Any-Speed HYTAC drive—to 1200 12-oz cans per minute with improved performance.

OILGEAR SOLUTION #1 (1955) Oilgear heavy-duty, Size 20, Any-Speed HYTAC (hydraulic tachometer) drives provided the first step in meeting user requests. These drives on a 6-spindle closer and 60-spout filler smoothly accelerated to full speed in 2 seconds—decelerated to stop in 0.2 seconds; a new, high fill-close rate—to 600 12-oz cans per minute without machine redesign; held *any* preselected speed within ± 0.5% regardless of load, electric power variations or viscosity changes—assuring uniform fill; reduced spillage and conveyor jams. Oilgear heavy-duty HYTAC simplified machine design and reduced maintenance by eliminating slip clutches and electric brakes—and by providing hydraulic cushioning; hydro-dynamic braking; automatic, positive protection against starting and running overloads. Remote, space-saving pump and motor location and completely sealed, leak-tight system provided protection to daily, sanitary washdowns. Users liked this improved performance and speed . . . over 50 similar installations have been made. Some users, however, continued to request higher production rates—with all of HYTAC's advantages.

OILGEAR SOLUTION #2 (1957) Due to the proven ability of Oilgear application-engineered, heavy-duty, drive and control systems to help meet user demands, this manufacturer naturally turned to Oilgear for further engineering teamwork in meeting new, greater production requirements. *RESULT*—new, higher production filling-closing machines that TRIPLE original mechanical drive output—to 1200 12-oz cans per minute with all the same desirable features outlined in the previous installations. One important addition has been made . . . new user satisfaction.



This is the newest Oilgear Power-Pak for filler-closers—Oilgear heavy-duty, Size 35 HYTAC drive components. Unit can be remotely mounted and remotely controlled for new performance, new production speed, new accuracy.

Here is but one reason and proof why designers and builders of machinery turn to Oilgear . . . why users recognize and trust the name . . . why more and more this phrase is heard, "For the lowest cost per year—it's Oilgear!"

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highlights

FOOD PROCESSING
December 1957
Vol. 18 no. 12

PROGRESS AND TRENDS

Industrial TV Supplements Automatic Rendering at Peterson 25
R. B. Mortimer, Executive Vice President and General Manager, and Dale Rycraft, Jr., Assistant General Manager, Peterson Manufacturing Co., Inc.

Kraft Foods Orders 5½ Million Aluminum Cans 29
Packaging in aluminum containers has been made commercially possible through a new manufacturing process

How to Upgrade Product Competition Profitably 30
Dr. Berton S. Clark, Research Director, Maine Sardine Industry Research and Quality Control Laboratory

Revolution in the Meat Industry 32
J. Earl Coke, Vice President, Loans and Investments, Bank of America

Food Conference to Cover Vital Role of Food to the Nation 35
National meeting of physicians, nutritionists, educators, and industrialists to be held in Washington, D. C. late in February

FOOD INGREDIENTS

Stabilized icing permits wrapping within 45 sec 42
4-yr taste-testing shows consumer prefers sweeter pack 46

SANITATION AND MAINTENANCE

How push-button cleaning of evaporators pays off 76
Wide-span steel buildings for citrus plant 80

IDEAS

Reduce filtrate solids to 0.002 — 0.006 ppm 70

PACKAGING

Packaging Viewpoint 60
Automatically carton pies, cakes at 70/min 62

PROCESSING

Recover product from "empty" paper bags 36
Don't grind — pulverize with ricochet action 52

INSTRUMENTATION

Low-cost punch card formula control accurate to 0.1 of 1% 84

MATERIAL HANDLING

Clean bucket elevator easily between batch change-overs 90

TRANSPORTATION

Punch cards replace route sales tags 38
Cut handling costs by pre-assembling orders in mobile bins 96

THE STAFF

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REGULAR DEPARTMENTS

Letters From Readers 8
Food Regulations 10
Plants, Companies, Personalities 16
Association News 20
Conventions & Exhibits 23
New Industrial Literature 100
Index to Advertisers 102

SPECIAL READER SERVICES

- When you want more information, see Reader Service Slip ..... Opp. 102
- If you want to subscribe to this magazine, see reader qualification form ..... Opp. 103

THIS MONTH'S COVER . . .

shows R. B. Mortimer, right, executive vice president and general manager, and Dale Rycraft, Jr., assistant general manager, Peterson Manufacturing Co., Inc., viewing yard operations on TV monitor from chief engineer's office. For complete story on how industrial TV supplements automation for Peterson, see page 25.

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letters from readers

Unshackle Food Improvements

San Francisco, Calif.—We are very pleased with Mr. Markel's elaboration on his original proposals (October issue, pg. 33 and November issue, pg. 35). This clarification leaves the reader with a better understanding of the present and proposed "food standards". Mr. Markel has been fair about it and as he points out he is not in a "fight" with FDA but merely engaged in a healthy debate, which all of us find enlightening. In fact, I think Mr. Markel's further elaboration of his original proposal is timely and well prepared.

GROVER D. TURNBOW
President
Foremost Dairies, Inc.

● A 20-page reprint of our series of articles on amending the FDA standards of identity is now available. It includes Markel's original proposal, comments of industry leaders, reply by FDA, and Markel's further elaboration of his proposal. No charge for single copies. Quantity prices on request.

—EDITOR

Who was First?

New York, N.Y.—On page 82 of your October issue, you illustrate Seabrook's new whole green bean package and mention, "Processor states this is first time frozen whole green beans have been made available at retail level". This is definitely not the case.

As one of the largest producers of frozen beans in this country, we have been packing Whole Green Beans for the past three or four years and have been the pioneer in this item. It is a matter of coincidence that we have just recently also come out with a metal foil overwrap for our Whole Green Beans at the same time that Seabrook decided to introduce this item.

I realize that this error is in no way due to any negligence on your part, but we would like to have the record set straight.

CARL KOLB
Manager, Marketing Department
Southland Frozen Foods, Inc.

● Here's a photo of the "original" whole green bean package. We are glad to record the true facts.

—EDITOR

Food Fat Forum

Austin, Minn.—The main point made by those who have prepared statements for the Food Fat Forum is that at present there is no indication for any drastic change in the processing and production of food fats. My own opinion is that until more definite information has been obtained about the role and importance of fat in atherosclerosis and heart disease, this view is fully justified.

W. O. LUNDBERG
Director, The Hormel Institute
University of Minnesota

● The Food Fat Forum was presented in our November issue, beginning on page 32, under the heading "Food Industry leaders cite new dietary findings . . . call for proper perspective on fats".

—EDITOR

Dairy Fats and Mr. Roberts

Omaha, Nebr.—Men engaged in scientific research have taken the time and trouble to commend our company upon its stand regarding food fats.

One such individual indicated that our story came out just in time. Had it not appeared when it did, the dairy industry would probably have faced the same kind of treatment given the tobac-

Readers are invited to submit their comments to:
The Editor, FOOD PROCESSING
111 E. Delaware Pl., Chicago 11, Illinois

co industry not long ago, for these reasons:

The dairy industry has been doing such a job of selling milk as a perfect food that very necessary food elements may be neglected through false assumptions regarding a complete diet. A local doctor told me that children given even more than adequate milk in their diets are dying as a result of infections brought on by iron deficiency.

In my judgment, the dairy industry and every other member of the food industry should tell the story of nutrition just as accurately and factually as possible, let the chips fall where they may. You cannot sell milk to a child in a cemetery lot. Nor to anyone else.

Certainly we intend to let no one substitute coercion for conscience in controlling the policies of our company.

J. GORDON ROBERTS
President
Roberts Dairy Company

There's a Delicious, Nutritious Roberts Milk that's JUST RIGHT for every member of your family!
Builds Strong Bodies for Sister and Brother
GOLDEN GUERNSEY
VITAMIN D
Cuts Calories and Fat for Dad and Mother
2+
VADA
SELECT FROM FOUR AT YOUR DOOR OR STORE...
Roberts

● Mr. Roberts sent us the foregoing letter more or less as a reply to the severe criticism heaped on him by readers, in letters published in our September and October issues, which commented on his controversial views published in July. In this article, Mr. Roberts explained by way of a footnote, which we printed in small type, that although he was vigorously promoting low fat dairy products he continued to push sales of all dairy products. As an example, we have reproduced, from an Omaha newspaper, a recent full-page advertisement, which promotes low fat as well as high fat milk.

—EDITOR

AUTOMATION

As sliced cold meats travel by on stainless steel Wendway belting, operator labels each type as they proceed to the package wrapping machine.

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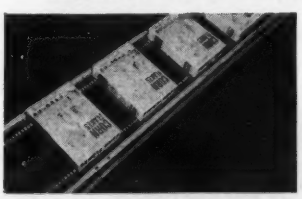

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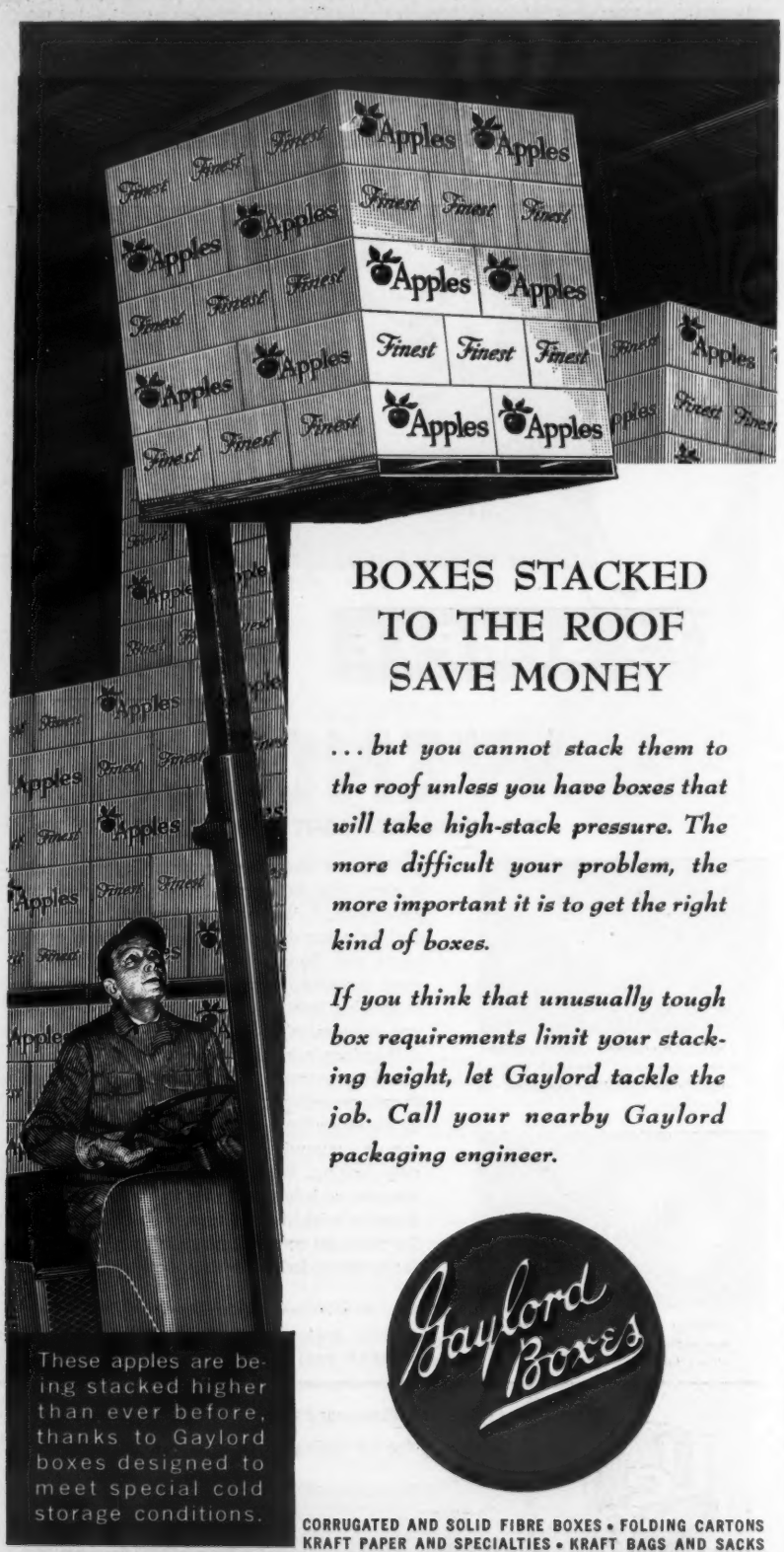

BOXES STACKED TO THE ROOF SAVE MONEY

. . . but you cannot stack them to the roof unless you have boxes that will take high-stack pressure. The more difficult your problem, the more important it is to get the right kind of boxes.

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food regulations

What Should Be Agri-Food Program For 1958 Congress?

Joint House-Senate Economic Committee hears views on vertical integration, 'self-help' dairy plan, food consumption trends

A Washington hearing of first importance to food processing executives is being conducted on Capitol Hill this month, Dec. 16-20. On those dates a subcommittee of the Joint Economic Committee of House and Senate will hear from a score of the nation's leading economists.

Their testimony is expected to provide the foundation for specific congressional action in the new year on new food and agricultural legislation.

Papers prepared by the economists were made available to FOOD PROCESSING's Washington office in advance of delivery. Among the recommendations to be made to the committee that are of particular significance to the food industry will be those of Dr. John H. Davis.

Davis, a Midwesterner, is now director of the business and agriculture program of the Graduate School of Business, Harvard University.

Committee asks 3 questions on integration

Asked to discuss "vertical integration" of food production, processing, and distribution facilities, Davis is answering 3 questions posed by the committee whose chairman is Senator John Sparkman (D., Ala.).

To the question — is integration practical and feasible? — Davis will answer that it obviously must be, because "it has been taking place for years". He will cite the examples of the processor-grower agreements in the canning industry, broiler and turkey integration, and others. "Moreover," Davis will say, "this technique is spreading into egg production and gives promise of extending into hog growing and cattle feeding."

To the question of whether integration is desirable," Davis will reply that "the positive outweighs the negative". He will add, however, that the nation sorely needs "an integrated food-fiber policy — an 'agri-business' policy."

In answering a committee question as to whether integration helps or hurts agriculture, Davis will say he believes it has generally made for agricultural progress — and has been an influence toward market stability. He will add, however, that off-farm linkups of processing operations sometimes "may contribute to instability".

More livestock needed

Dr. Herrell DeGraff, professor of food economics, Cornell University, Ithaca, N. Y., will advise the committee that "the livestock fraction of the diet" of Americans should be increased, in order to expand over-all demand for raw farm products.

The total market will expand with population gains, but the amount of demand per person will increase little or none, DeGraff will testify. "For half a century," he will point out, "our per-capita disappearance of food has

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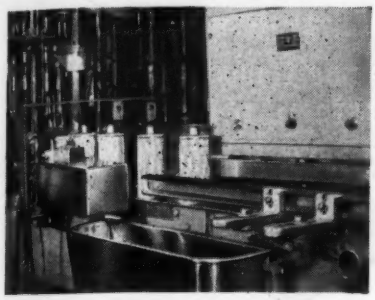

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The Curtiss-Wright Correct Fill Monitor scans the fast moving packages on the production line and accurately determines whether the level of the liquid or free-flowing solid is above or below the prescribed amount. If the package is not filled EXACTLY to the desired level, the container is automatically *ejected* from the line.

This rapid electronic inspection is made possible by a tiny amount of controlled radiation, in conjunction with a detection tube. It is a positive, low cost way to check the filling of your packages and find the misfills instantly . . . has many advantages over other methods. Write for detailed literature.

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Dr. Davis

Dr. DeGraff

varied only in a narrow range of the 1550 lb annual figure."

DeGraff will recommend greater US livestock production. Increased consumption of such foods as meat, eggs, and dairy products, he will say, will absorb more grain and forage and could solve "overproduction" problem.

"During the past 35 years about 2 percent more livestock production annually would have used up all the surplus crops," he will argue.

Predicts dairy plan will increase milk 1c/qt

Another veteran economist, Dr. John Black, professor emeritus, Harvard University, will tell the lawmakers he is opposed to the "self-help" dairy program being worked out by the National Grange and the National Milk Producers Federation. The Grange-Federation proposal (details in November issue, page 10) would increase retail prices an estimated 1c per quart for milk and up to 7c per pound for butter.

Black will describe the dairy plan as "superficial". He will tell the congressional committee that it would probably reduce consumption, increase surpluses, and still might yield "little additional net return to producers".

Begin mandatory poultry inspection in May instead of January

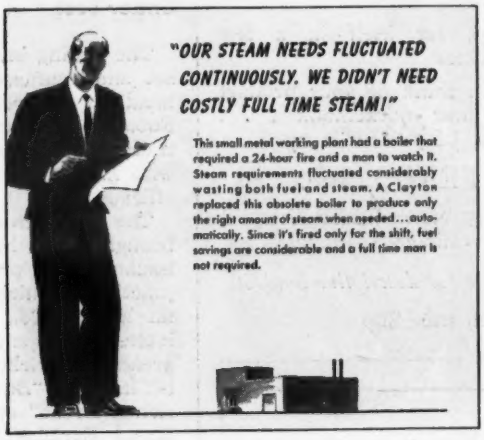
Poultry inspection under the mandatory law passed by the Congress this year will begin "approximately" May 1, the USDA has announced. The law gives the department authority to start the new service after Jan. 1, 1958.

A year from that date, all

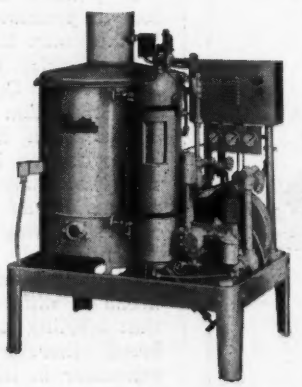
(*Continued on next page*)

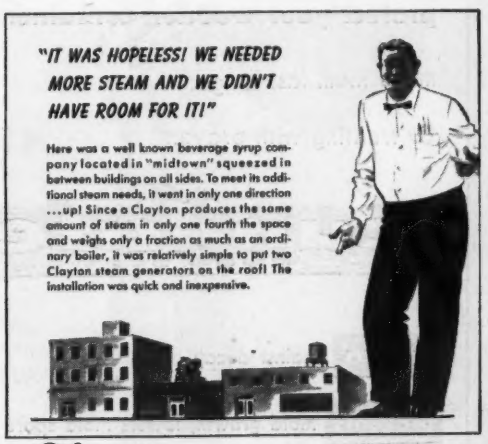
How a Clayton STEAM GENERATOR SOLVED THREE *different* STEAM PROBLEMS!

"WE WERE FACED WITH AN OBSOLETE CENTRAL BOILER ROOM AND DETERIORATING TRANSMISSION LINES"
This well known chemical company had a sprawling plant with long transmission lines and condensation problems. Fluctuating steam needs throughout the plant made steam production a problem. The ordinary boiler had to be kept at full pressure all day... fired all night. Seven Clayton Generators strategically located now provide just the right amount of steam—when and where needed. They are shut down at night. These seven Clayton generators installed cost less than the cost of new transmission lines.


"OUR STEAM NEEDS FLUCTUATED CONTINUOUSLY. WE DIDN'T NEED COSTLY FULL TIME STEAM!"
This small metal working plant had a boiler that required a 24-hour fire and a man to watch it. Steam requirements fluctuated considerably wasting both fuel and steam. A Clayton replaced this obsolete boiler to produce only the right amount of steam when needed... automatically. Since it's fired only for the shift, fuel savings are considerable and a full time man is not required.

These actual case histories represent only a few of the reasons why smart business men buy Clayton Steam Generators. Basically the story is more steam at less cost in only one fourth the space occupied by ordinary steam boilers. They cost less to install too . . . no stacks to erect, no walls to knock out, lower rigging expense and lower hauling costs. The secret of Clayton's higher efficiency is *controlled circulation*—no space consuming straight tubes, but instead, a principle of using a coil without fired vessels . . . easier to operate and maintain. From a cold start, Claytons produce steam in 3 minutes. Let a Clayton representative give you the complete facts.




"IT WAS HOPELESS! WE NEEDED MORE STEAM AND WE DIDN'T HAVE ROOM FOR IT!"
Here was a well known beverage syrup company located in "midtown" squeezed in between buildings on all sides. To meet its additional steam needs, it went in only one direction ...up! Since a Clayton produces the same amount of steam in only one fourth the space and weighs only a fraction as much as an ordinary boiler, it was relatively simple to put two Clayton steam generators on the roof! The installation was quick and inexpensive.

EXCLUSIVE!
Compare Clayton's 5-year published coil warranty covering material and labor.

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We use steam for _____

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El Monte, California

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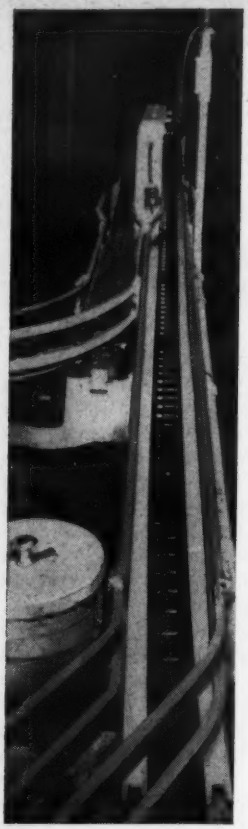

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food regulations

(Continued from preceding page)

plants moving birds in interstate commerce are required to be in the program.

Some poultry plants may protest the USDA decision to delay starting the new service until next May 1. Reason is that the Government will pay inspection fees under the mandatory program while processors now bear the costs of the voluntary program.

FDA standards law under test

The baking industry is "upset and confused" by FDA's handling of bread standards, FOOD PROCESSING is told by trade sources in Washington who have been meeting with officials.

The standards issue was brought to a head following issuance of a preliminary injunction, requiring Continental Baking Co., Inc., to stop interstate shipments of white bread or enriched bread that is labeled "Buttermilk Enriched Bread" or "Buttermilk Bread Enriched".

A petition has been filed for a permanent injunction in the court in question, the U.S. District Court for the District of Columbia. Until that injunction comes up for consideration, the case cannot be argued on its merits, and the time may be some 18 months away due to the court's backlog of cases.

Continental contends that addition of buttermilk gives bread a different taste, and that labeling it as buttermilk bread therefore assists the consumer in identifying what she buys.

May ban revised labeling

FDA officials, at press time, were trying to decide whether to take further action in the Continental case. Question in their minds was whether to file an amended complaint banning Continental's revised labeling, "Made with Buttermilk".

Among other questions being asked by both officials

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spice RESEARCH NEWS

Four-Year Study Pinpoints Antioxidant Values of Spices

Research conducted at the Hormel Institute (University of Minnesota) has established the antioxidant activity of 32 spices in several types of fat-containing foods.

A total of 78 samples of the spices were used in tests run on lard, baked pie crust, a simple oil-in-water emulsion, mayonnaise, French dressing and ground pork which was stored at both 23° and 5°F.

Highlights: Sage and rosemary were found to be outstanding antioxidants in lard, each extending stability several times. Soluble fractions of the spices were found in the main to have less antioxidant power in lard than the ground spices. Oregano, rosemary, thyme and sage lengthened storage life of pie crust appreciably. Cloves, turmeric, allspice, mace and rosemary proved excellent antioxidants in the oil-in-water emulsion, as were allspice, cloves, rosemary and sage in ground pork. In mayonnaise, oregano had the highest antioxidant index, followed by cloves, rosemary, sage and thyme.

★★★★★★★★

FURTHER DETAILS . . . on this Antioxidant Research Project are available from the Information Bureau, American Spice Trade Association, 350 Fifth Avenue, New York 1, New York

American Spice Trade Association

5814 on Reader Service Slip

and industry leaders was whether changes should be sought in present bread standards. Officials appeared inclined to favor the idea on grounds that changes could be made with relative ease which would allow different labeling of many types of bread.

The "very broad" bread standards, officials said, were bringing up other questions such as: how far should we go in playing up ingredients? How much buttermilk should be required in order to justify labeling in large letters?

Industry leaders agree that the present standards are "pretty open-ended", but do not appear as sure as government officials that changes could be easily made or that they would necessarily improve the situation.

Bread claims being checked

It was clear, meantime, that the action taken against Continental is part of a general FDA campaign directed toward correction of alleged standards abuses. "We are even seeing claims," said FDA Commissioner George P. Larrick, "that eating certain breads will result in loss of weight, prevent aging, or that ordinary breads may be harmful to the heart."

Said another FDA official, "We are looking into the so-called reducing breads."

The agency reports broad-scale cooperation with its request of the industry that stressing buttermilk as an ingredient is "contrary to labeling requirements of the Federal bread standards as interpreted in recent court orders".

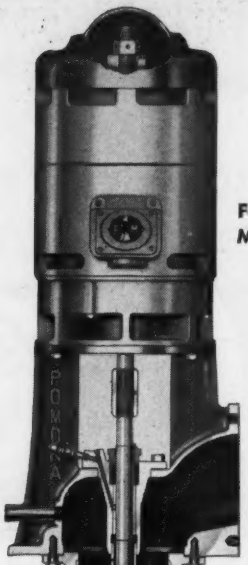
More than 30 bakeries had responded, saying they "intended to change their labels", the FDA reported in an official release. A trade official commented that such a statement is "meaningless and ridiculous".

Brief But Important

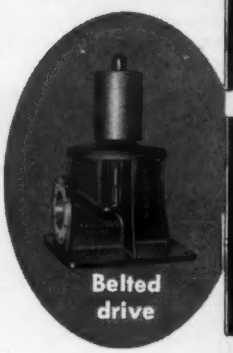
Trade sources in Washington report that FDA is now conducting special toxicity studies of safrole, following

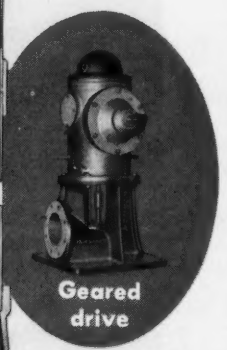
(*Continued on next page*)

You'll want to look into this pump



F-M UNI-DRIVE MOTOR





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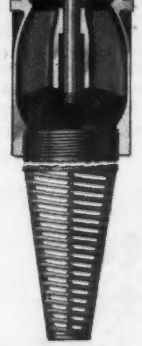
Ask for details on this new F-M Pomona pump for raw water supply, air conditioning, refrigeration, cooling towers, sump pumping, dewatering, etc. Contact your Fairbanks-Morse Sales Engineer today. Ask for new illustrated Bulletin 6957-1. Or write Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 5, Ill.



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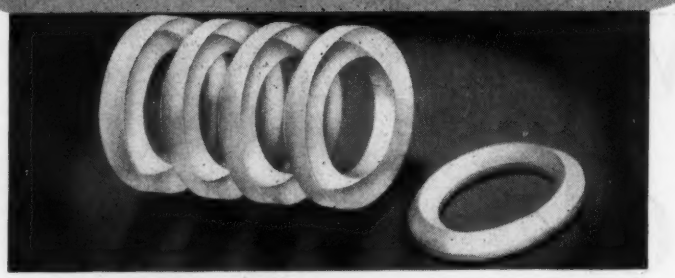
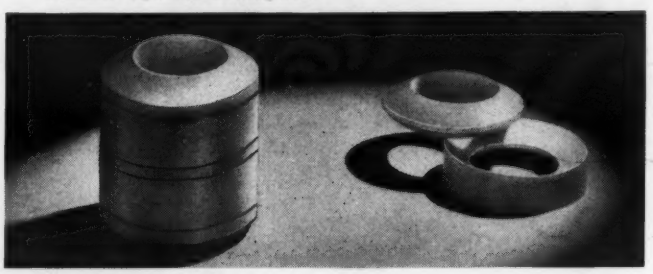
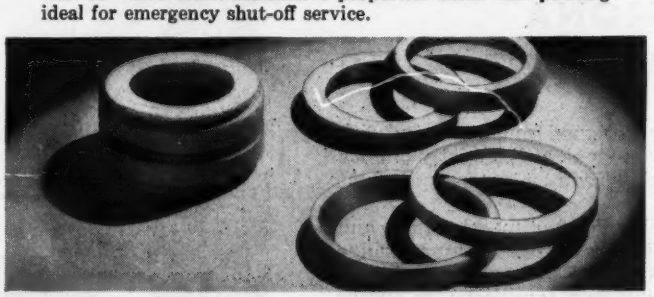


V-Rings. Distinctive tapered V design offers greater flexibility and resiliency, providing necessary seal at low gland pressure and reducing torque on valve stem. Antihesive properties guard against valve packing "freeze". Supplied in sets with or without TEFLON square-end adaptors.



Cup and Cone Rings. Cones deform inwardly to seal at the spindle, while cups expand outwardly against stuffing box wall, effecting a tight seal at low gland pressure with minimum friction on valve stem. Antihesive properties make this packing ideal for emergency shut-off service.



Wedge Rings seal at unusually low gland pressure required for valves manufactured from Haveg, Karbate, ceramics, etc. Provide space for thermal expansion, suiting them for slow-speed pumps, agitators, auto-claves, etc. Adaptable to spring-loading if desired.

Write for Catalog AD-155.

United States Gasket Company
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United States Gasket *Plastics Division*

OF THE GARLOCK PACKING COMPANY

5816 on Reader Service Slip

food regulations

(Continued from preceding page)

submission to the agency by a food company of data on the product. Manufacturers and users of sassafras have been advised of the FDA work, and it has been made known to them that officials will welcome any pertinent data from the food industry.

FDA STANDARDS

List of foods for which standards have been established is available from Food and Drug Administration, Washington 25, D. C.

Samsoe cheese: Final order establishing a definition and standard of identity for this product is expected about now. Objections of Kraft have been withdrawn to this Danish cheese upon notification from the government of Denmark that exports to this country will limit moisture content to 41%. This percentage is the same as the limit allowed for Swiss cheese. The Danes, in petitioning for a definition and standard of identity, originally had suggested a moisture limit for Samsoe of 46%.

Grated American cheese food: An order has been stayed pending hearing on a previous order establishing a definition and standard of identity for grated American cheese food. The hearing, dates for which had not been set at press time, was requested by Kraft Foods division of National Dairy Products. Kraft objected to the name specified; the minimum limit for milk fat; the "failure" to list pasteurized process American cheese as a permitted optional ingredient; the "failure" to provide for an acidifying agent; and, finally, the maximum limit specified for the permitted emulsifying ingredients. Objections were also registered by two firms interested in dried whey, the Western Condensing Co., Appleton, Wis., and Foremost Dairies, San Francisco.

Other cheeses: Wisconsin cheese manufacturers have filed objections to a government order denying defini-

(advertisement)

Vibrators provide low cost flow insurance

Virtually all food preparation plants utilize a dry or viscous material in bulk somewhere in their process. Usually this material is stored in bins or hoppers awaiting introduction into the processing flow.

The uniform emptying of these bins is often vital to keeping the process moving smoothly, without delays. Unfortunately though, these materials do not always cooperate with a smooth flow. They bridge, arch, plug and just generally act obstreperous.

Problem can be solved

Whenever this happens the usual solution is an intelligent application of a sledge hammer. This remedy, though effective, has several drawbacks. First it is put into effect after the production line is already stopped. Second it is wasteful of expensive man hours, and thirdly, it damages your bins.

Vibrators do better job

There is a better way of handling this problem, and that is the use of vibrators. Vibrators can be attached to bins with no re-arrangement of equipment. They will eliminate the bridging problem before it starts. Vibrators will not damage bins, and they can be operated automatically with virtually no investment of man hours. In fact this last advantage will probably pay for a vibrator installation in an extremely short period.

Cleveland industry leader

One of the foremost companies in the vibrator business, is The Cleveland Vibrator Company. This manufacturer offers a wide line of vibrating equipment ranging from a small vibrator for use on chutes to complete vibrating tables for packaging operations. Cleveland offers air or electric vibrators and silent or standard types. If you would like more information including descriptions of the complete line and prices, write The Cleveland Vibrator Company, 2818 Clinton Avenue, Cleveland 13, Ohio.

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tions and standards of identity for mozzarella, scamorza, part-skim mozzarella, and part-skim scamorza. As a result, officials report, a hearing will be held, although the date had not been set as we went to press.

USDA STANDARDS

Corn: Proposed revision of standards for frozen corn-on-the-cob would establish as scorable factors, development and uniformity of size; and redefine the definition of sample as sample unit. Revision coordinates with the recently revised rules and regulations for processed foods with respect to sampling and certifying of a lot. Grade designations would remain the same as now in effect. Interested persons have until Feb. 4, 1958, to submit views and comments.

Raisins and dried currants: Changes in standards are now in effect. For processed raisins the tolerance has been lowered for definitely dark berries from 1% to ½% in the definition of "well-bleached (or extra fancy) color" for Sulfur Bleached and Golden Seedless Thompson. For both raisins and currants the terminology "poorly developed blowovers" has been changed to "underdeveloped", and the allowance for this defect retained as before. A further change eliminates the specific methods for ascertaining "moldy" raisins and currants to permit use of modern and better techniques.

Pesticides: Time has been extended until Dec. 31 for submission of views on a proposed amendment to regulations for labeling of commercial pesticides. The amendment, first proposed last Sept. 11, would prohibit statements in the labeling that would directly or indirectly imply recommendation or endorsement of pesticides, or their ingredients, by any federal agency. Comment should be sent to the Plant Pest Control Division, ARS, U.S. Department of Agriculture, Washington 25, D. C.

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Specify WALWORTH PVC (rigid polyvinyl chloride) Valves and Fittings!

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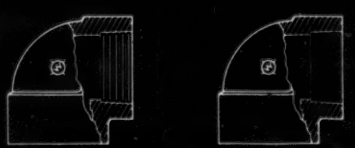
Walworth PVC Y-Globe Valves are designed to regulate the flow of alkalies, acids, and similar corrosive fluids. Walworth PVC Diaphragm Valves* are commonly used in systems handling corrosive fluids, especially those containing suspended materials, and can be furnished with diaphragms suited to your application.

*Hills — McCanna (Saunders Patent)



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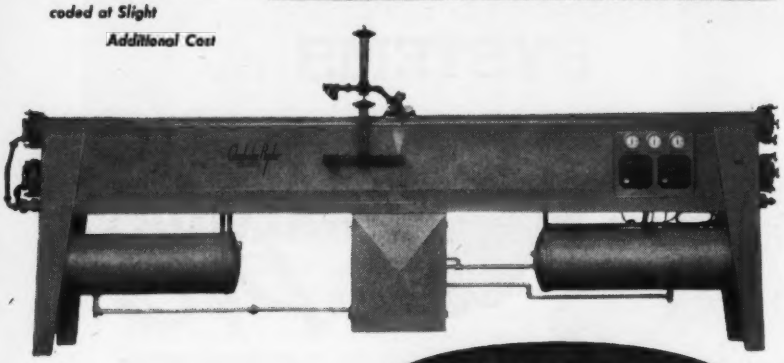

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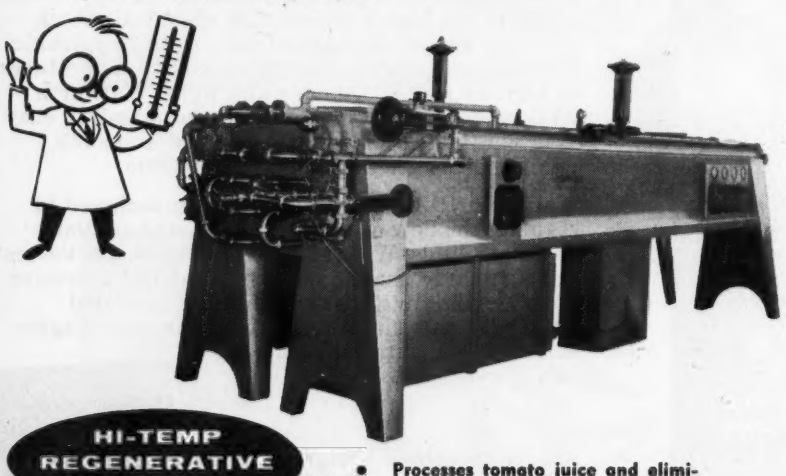
Steam is injected under vacuum for even, instantaneous and most efficient distribution. Equipped with automatic controls. Can be used to heat or cool liquids, juices, chopped products – almost any product that can be pumped.



HI-TEMP REGENERATIVE UNIT

- Processes tomato juice and eliminates "flat sours" caused by Thermoaciduran bacteria.
- Sterilizes juice up to 260° F. after extraction, then cools it for filling.
- Saves up to 30% steam by recirculating the water heated in cooling the product to preheat the chopped tomatoes. Temperatures completely and automatically controlled from instrument panel.

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plants companies personalities

Four industry giants form production planning firm for army radiation center

Stockholder companies, each with radiation research background, pool food processing know-how for first pilot-production-size radiation facility

Representing four major areas of food business, Armour and Co., Chicago; Continental Can Co., Inc., New York City; Food Machinery and Chemical Corp., San Jose, Calif.; and General Foods Corp., New York City, have joined together to form Irradiated Products, Inc. The new company will direct production planning of facilities for U. S. Army Ionizing Radiation Center, to be built at Sharpe General Depot, Lathrop, Calif.

Each company has radiation research background in the food processing field.

Subcontractors for the project are American Radiator & Standard Sanitary Corp., New York City; Stanford Research Institute, Menlo Park, Calif.; and Varian Associates, Palo Alto, California.

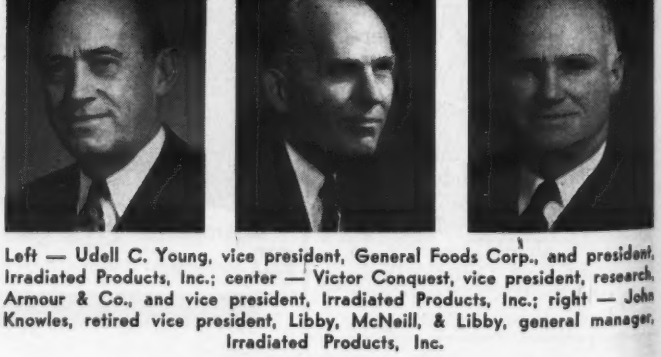
Headquartering in New York City, Irradiated Products, Inc. was formed to undertake planning of the first pilot-production-size food radiation facility in the world.

General manager appointed

John Knowles, retired vice president and research director for Libby, McNeill, & Libby, has been appointed general manager of the newly formed company. Officers of the company include Udell C. Young, vice president, General Foods, as president; Victor Conquest, vice president, research, Armour & Co., as vice president; Arno M. Wiese, assistant to vice president, General Foods, as secretary; and John N. Carty, assistant treasurer, Continental Can Co., as treasurer.

Operations of the Ionizing Radiation Center will combine industrial knowledge and experience in plant design and food processing with the scientific knowledge developed by the Army's research program in food irradiation. The Army program, administered by Headquarters, Quartermaster Research and Engineering Command, Natick, Mass., will direct operations of the radiation center.

(*Continued on page* 18)



Left — Udell C. Young, vice president, General Foods Corp., and president, Irradiated Products, Inc.; center — Victor Conquest, vice president, research, Armour & Co., and vice president, Irradiated Products, Inc.; right — John Knowles, retired vice president, Libby, McNeill, & Libby, general manager, Irradiated Products, Inc.

that's interesting

Fast brew

Using what is called "pressure brewing," new coffee maker is described as faster than conventional types and capable of producing coffee of extremely consistent flavor. It will brew 1½ gal in 3½ minutes infusion time. Water reserve holds 7 gal. About 50 lb of pressure is developed by a small compressor. (Made by Rosander Co., 311 5th Ave., Minneapolis, Minn.)

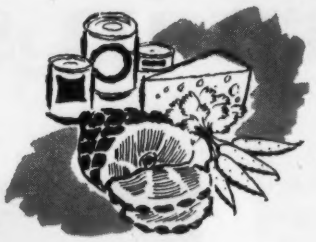
Chameleon paint

A chameleon paint, normally dark blue, turns white if temperature of a surface to which it is applied exceeds 580°F. Used by oil refineries, it permits quick detection of "hot spots" on reactor shells. (*The News*, Esso Research and Engineering Company)

For more information on product at right, circle 5820 see information request blank opposite last page.

Using Salt Efficiently

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt



Sterling Purified Salt Always Protects Flavor, Color, Texture

Vegetable canners . . . bakers . . . butter, cheese and oleomargarine manufacturers . . . meat packers . . . fish packers . . . virtually the entire food-processing industry agrees: *Sterling Purified Salt is a superior product.* Experience on production lines everywhere has shown that Sterling Purified Salt always protects the flavor, color and texture of food. Thus, it is used "whenever salt of the highest quality is needed."

Sterling Purified Salt is guaranteed to contain more than 99.95% sodium chloride. There are never more than 40 parts per million combined calcium and magnesium, never more than 0.5 parts per million copper or iron. Downgrading of food—caused by excessive calcium or magnesium content in salt—is *eliminated.*

Here's what food processors have to say about this remarkable high-purity salt:

"We've been using Sterling Purified Canners Salt for years on our lines, because we like the way canned vegetables always retain their rich natural colors."

"We've licked the problem of oxidative rancidity in vegetable fats and oils caused by impurities in ordinary salt. We use only Sterling Purified Salt."

A meat packer has this to say: "We always use Sterling Purified Salt to protect meat flavors."

A successful baker reports: "Every loaf of bread and every cake we bake has just the right texture. One of the important reasons is that we always use Sterling Purified Bakers Salt to prepare the sponge."

These are typical of the comments food processors have for the quality of Sterling Purified Salt.

Equally favorable are the reports on Sterling Purified Salt's additional features. Because it's a *granulated* salt, it offers these distinct advantages:

1. It won't break up in shipping or handling—always maintains its uniform crystal size.
2. It has a constant volume for any given weight—can be measured with precision on either a weight or a volume basis.
3. It dissolves instantly and *uniformly*—in every type of salting operation.

You can use Sterling Purified Salt dry, or in brine form, with equal effectiveness. Many of today's food processors, however, find brine most convenient and economical, because it greatly simplifies salt handling and reduces salt consumption. To make high-quality brine automatically from Sterling Purified Salt, International has developed the Sterling Evaporated Salt Dissolver in many custom designs and sizes . . . in steel, Monel metal, or corrosion-proof plastic.

Other Modern Equipment Dispenses Sterling Purified Salt in Bulk, Tablets, Brine

Today's canners benefit from three more efficient, modern salt-dispensing machines available from International. The newest one is the Sterling "Electro-Portioner" Brine Dispenser, which can dispense brine into as many as 300 cans per minute—with consistent accuracy. Also available is the Sterling Saltomat, for depositing Sterling Purified Salt tablets into cans on fast-moving lines . . . and the Sterling Bulk Salt Dispenser, which handles Sterling Purified Salt in dry, granular form.

FOR COMPLETE DETAILS on salt dispensers, brine-making equipment, or salt-handling techniques . . . and for expert technical assistance on any problem of salt or brine—get in touch with International Salt Co. One of our "Salt Specialists" will be glad to help you get maximum efficiency and economy from the salt you use.

International Salt Co., Scranton, Pa.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; Memphis, Tenn.; and Richmond, Va.

STERLING PURIFIED SALT . . . CANNERS SALT . . . AND BAKERS SALT are all the same high quality. They more than meet the low requirements for calcium, magnesium, copper and iron for the entire food-processing industry.

FOR INDUSTRY, FARM, AND THE HOME—
STERLING SALT
PRODUCT OF INTERNATIONAL SALT CO., INC.

Plants, companies personalities

(*Continued from page* 16)

What production planning includes

Production planning for the center will include the development and review of plans for the plant layout, space allocations for various functions, work-flow diagrams, production methods, and practices and cost studies.

Construction of the center is expected to begin in 1958. Center will consist, primarily, of a food processing plant, utilizing an electron accelerator, to be constructed for the Army Quartermaster Corps by Varian Associates, and a gamma ray source, the design of which is not yet decided.

O. A. Oudal, products control manager for the **Grocery Products Div.** of **General Mills** since 1953, has been appointed director of products control. He will report to **Dr. Frank C. Hildebrand,** vice president and former director of products control, who has been assigned new responsibilities for organization planning.

Walter E. Diemer, works manager of **Frank H. Fleer Corp.,** Philadelphia, has been elected vice president and a member of the board of directors. **Gilbert B. Mustin, Jr.,** vice president in charge of marketing, is now executive vice president. **Gordon V. Moyer,** controller, has been elected treasurer.

Richard D. Cleaves has been named vice president and general manager of **Cochran Continental Container Corp.,** Louisville, Ky.

Ralph B. Johnson, executive vice president of the **National-American Wholesale Grocers Assn.,** has been named assistant to the vice president in charge of marketing at **H. J. Heinz Co.,** Pittsburgh, Pa.

The Yarway Impulse a new era in steam

. . . it began in 1935, when Yarway applied a unique principle of thermodynamics to steam traps—and the Yarway IMPULSE Steam Trap was born.

Since then over 1,225,000 Yarway IMPULSE traps have proved themselves so well in service that today many other type traps are regarded as obsolete—an understandable reason why the Yarway IMPULSE type of steam trap is being imitated.

To industry, the Yarway IMPULSE trap makes possible a new high in thermal efficiency of equipment, a new low in trap operating maintenance . . . resulting in increased production and higher profits for the user.

THE THERMODYNAMIC PRINCIPLE

This is the principle on which the Yarway IMPULSE trap design is based—that variations in temperature of water discharging through two orifices in series cause variations in pressure in an intermediate chamber between the orifices, and that these changes in pressure may be utilized to open and close the trap valve.

ONE MOVING PART

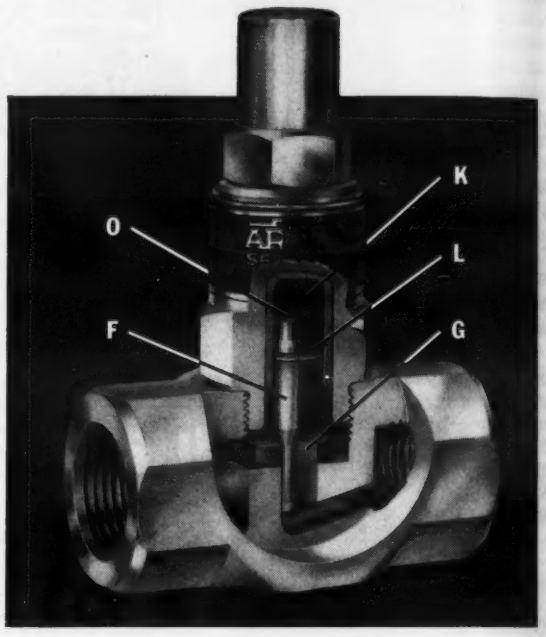
There is only one moving part in a Yarway IMPULSE trap—a small, stainless steel valve. If needed, the entire valve assembly can be replaced in 5 or 6 minutes. It is the simplest of all steam traps to service.

EQUIPMENT HOTTER, SOONER—STAYS HOT

At "start up" the little valve opens wide to discharge air and condensate continuously. This brings equipment into production in the quickest possible time. The valve then actually floats on the condensate load, opening at intervals to discharge each bit of condensate as it forms, maintaining highest, steady temperatures.

HOW IT WORKS

When steam is turned on, condensate and air flow into trap, exerting pressure on underside of control disc L, raising valve F and allowing full discharge through valve seat G.



Meantime, tiny portion of condensate flows around control disc L into control chamber K and discharges through orifice O in the center of valve. This keeps pressure low in chamber K until condensate approaches steam temperature. Some of this hot condensate now begins to flash in control chamber and on downstream side of control orifice O. This chokes the flow through orifice O and pressure builds up in chamber K, snapping valve F shut.

When condensate cools slightly, flashing stops, relieving pressure in K and permitting valve to re-open. In practice, valve opens and closes at short intervals on ordinary condensate loads, remains wide open on heaviest condensate loads. Steam equipment is always kept at its peak operating temperature.

PLUS ADVANTAGES

Other advantages like the following have wide appeal to hundreds of thousands of users:

- Small size and light weight
- Easy, low cost installation
- Minimum maintenance
- Non-freezing
- Stainless steel construction
- No adjustment of valve or seat needed for any pressure
- Low initial cost

started rapping...

A YARWAY IMPULSE STEAM TRAP TO MEET EACH TRAPPING REQUIREMENT

Research and development in the Yarway Steam Laboratory, combined with intensive field testing, have produced a line of steam traps—*all* of the Yarway IMPULSE type . . . to specifically and efficiently meet each of the following classes of trapping service:

Normal requirements for pressures up to 600 psi are satisfied by Yarway Series 60 and 120 IMPULSE Traps in six sizes, ½" to 2".

Light loads for pressures up to 600 psi are handled most efficiently by the ½" Yarway No. 20-A and No. 120-A IMPULSE Traps.

Heavy loads for pressures to 600 psi call for the extra high capacity Series 40 Yarway IMPULSE Trap, available in five sizes, ½" to 2½".

Highest pressure and marine requirements up to 2500 psi are met by the Yarway Integral-Strainer IMPULSE Trap, in six sizes, ½" to 2", flanged, screwed and socket weld types.

NATIONALLY STOCKED, SOLD AND SERVICED

Over 270 Industrial Distributors, conveniently located in every industrial area, stock and sell Yarway IMPULSE Steam Traps . . . and over 35 Yarway field engineers throughout the country are available to help you select the right steam trap for the service and insure maximum efficiency on the job.

For free copy of new bulletin "*The Why and How of Steam Trapping*," write:

YARNALL-WARING COMPANY
126 Mermaid Avenue, Philadelphia 18, Pa.

YARWAY *impulse*®
...a good way to specify steam traps

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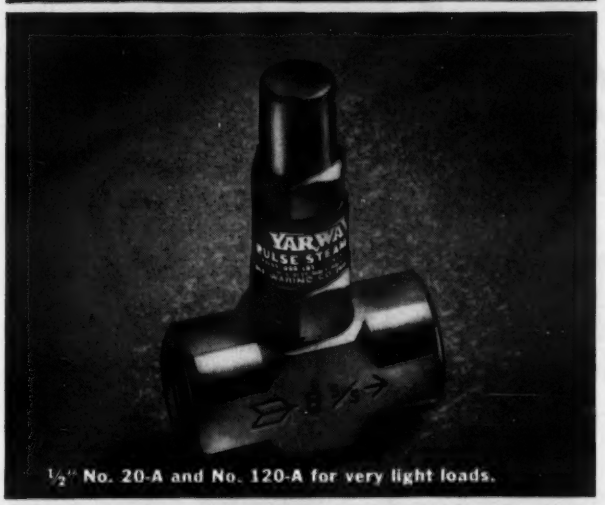
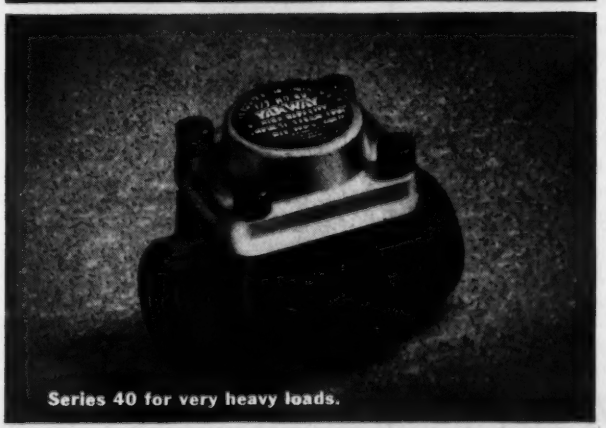
Series 60 and 120 for normal requirements.



½" No. 20-A and No. 120-A for very light loads.


Series 40 for very heavy loads.

Integral Strainer Impulse Traps for highest pressures and marine use.

G. J. Frost, Chicago sales manager of **Mickelberry's Food Products Co.**, was promoted to general manager of sales and production of all the company's Chicago plants.

Pillsbury Mills, Inc., has appointed **Arthur P. Loomis** as general manager of Pillsbury's refrigerated products division and **James H. Owens** as director of sales and marketing for the division.

Campbell Soup also announces appointment of **Oscar H. Curry** as vice president, administrative planning. Formerly comptroller, he will prepare long- and short-range plans for the company's development. **C. Roger Stegmaier**, assistant comptroller, succeeds him as comptroller.

The board of directors of **Richmond-Chase Co.**, San Francisco, have elected **B. E. Richmond** as president. He succeeds his father, **E. N. Richmond**, now chairman of the board. Officers of the company pictured are (left to right): **R. B. Richmond**, executive vice president; **E. A. Meyer**, vice president, Eastern Division; **E. N. Richmond**, chairman; **J. R. Braden**, vice president; and **B. E. Richmond**, newly-elected president.

V. R. Van Natta and **Henry Kohorn** have been elected vice presidents of **Consolidated Foods Corp.** Mr. Van Natta is also president of Consolidated's Monarch Finer Foods Div. Mr. Kohorn is president of **E. A. Aaron & Bros., Inc.**, a Consolidated subsidiary.

New! Improves Chocolate!

INTENSITOL

Synthesized Chocolate Flavor Intensifier

Completely new development! Heretofore unobtainable flavor aromatics, produced in our laboratories, will dramatically improve the deliciousness of your chocolate flavored products.

In conjunction with cocoa powder, or chocolate liquor add INTENSITOL to your product and you restore delicate volatile flavor aromas universally lost during manufacturing processes. This new synthesized chocolate intensifier in your product assures the ultimate in *flavor's richness, taste* and *aroma.*

Wonderfully improves:

cakes • cookies • puddings • syrups
icings • dry mixes • candies • ice creams
and all other chocolate flavored confections.

Send for samples, prices & information.

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FLAVOREX CO.

MAKERS OF FINE FRUIT JUICE FLAVORS
302 S. CENTRAL AVE., BALTIMORE 2, MD.

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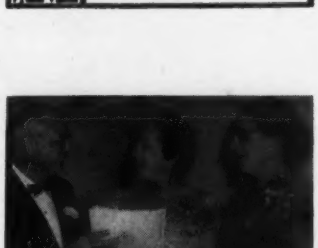
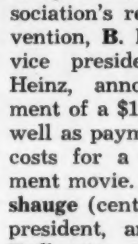
association news



H. J. Heinz Co. is helping the **American Dietetics Assn.** attract more students to the study of nutrition. At the Association's recent annual convention, **B. D. Graham** (left), vice president-marketing, of Heinz, announced establishment of a $1000 scholarship as well as payment of production costs for a dietitian recruitment movie. **Miss Lucille Refshauge** (center), retiring ADA president, and **Dr. Elizabeth Todhunter,** incoming Association president, show their enthusiasm for the projects.



C. E. Walter

Newly elected president of **Brewers' Assn. of America** is **Carlus E. Walter,** vice president and general manager of the **Peter Bub Brewery,** Winona, Minn. — one of the oldest Minnesota breweries.

Corn Industries Research Foundation, Inc. was recently named winner of the Grand Award of the **American Society of Association Executives Outstanding Awards Contest for 1957.** The award was conferred for "outstanding success in developing a sound program of basic research in the products from corn grains." The Foundation's program has included fellowship grants to science centers and sponsored research in universities and private institutions. Since 1939 it has conducted an annual "Starch Round Table".

Texture —that's what makes the difference

It makes the difference where it counts the most—in sales. For texture can make the housewife reach for one brand rather than another of peanut butter, or cake mix, or margarine, or shortening, or ice cream—or any product where texture depends on how well the fats and non-fats stay together.

We make a texture-improving emulsifier that's like nothing else you can get. It's a monoglyceride with a difference because of the extra step represented by our unique molecular distillation. Our customer gets a product with an exceptionally high mono content. The waste burner gets the catalysts and other substances which would otherwise remain to downgrade taste, odor, and color. This high purity results in more effective emulsification and thereby saves money because so little goes such a long way.

If you make a product that needs a wholesome emulsifier and could benefit from the sales advantage of improved texture, let's get together. Our product is Myverol® Distilled Monoglycerides. The place to write is ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago and Memphis • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

distillers of monoglycerides made from natural fats and oils

Also . . . vitamin A in bulk for foods and pharmaceuticals

DPi

Distillation Products Industries
is a division of **Eastman Kodak Company**

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International Assn. of Milk and Food Sanitarians has presented this year's Citation award to **F. C. Baselt**, Research and Technical Dept., **American Can Co.** The group's "Sanitarian of the Year" honor was awarded to **Harold Barnum**, chief of milk sanitation services in Denver's Dept. of Health and Hospitals. The Sanitarian award, which includes $1000, is presented annually to a county or municipal public health official.

Emil Mrak

A. Nielsen, Jr.

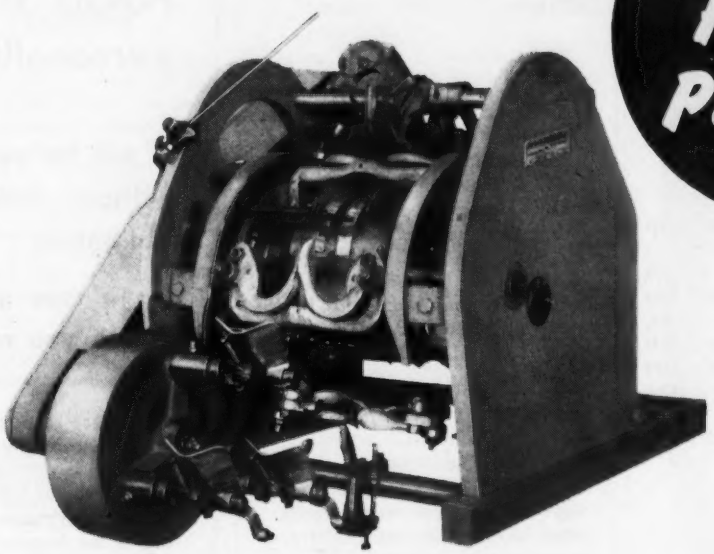
National Canners Assn. convention in Atlantic City opens Monday morning, January 20. Featured speakers include **Dr. Emil Mrak**, University of California; **A. C. Nielsen, Jr.**, research specialist in food marketing; and **Cdr. Edward Whitehead**, well known as the "man from Schweppes". The accompanying exposition of canning and freezing machinery, supplies, and services will run for five days beginning Saturday afternoon, January 18. More than 130 exhibitors will display their newest developments.

Henry G. Frost, assistant chief engineer, **Corn Products Refining Co.**, has been chosen president-elect and secretary of the **Instrument Society of America.** He is a charter member of the ISA.

University of California at Los Angeles has begun a new Agri-Business curriculum in the Farm Management Dept. The program, under direction of **Dr. Roy J. Smith**, is aimed not only at making better businessmen out of farmers but providing men with better training for the many agriculturally related businesses located in urban areas.

a completely NEW design

ATLAS-PACIFIC
FREESTONE
PEACH PITTER

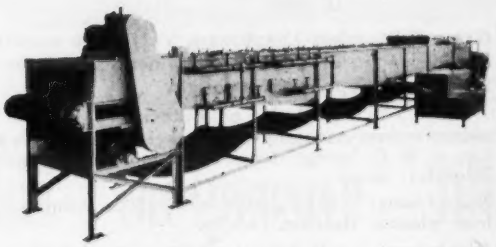


Pits and halves, without breaking down fruit at stem end, offering attractive full halves with consumer eye appeal. Removes more split pits and pit fragments than any other freestone pitter.

Atlas-Pacific new "spooning action" enters the stem end and removes most of fragments in split pit fruit, and does not cut into or split the sides of the fruit being halved. After cooking, halves retain their natural, attractive cup shape.

ATLAS PACIFIC FREESTONE CUP DOWN LYE PEELER

A natural to go with this Freestone Peach Pitter. More yield; better grades; cleaner, smoother appearing fruit; greater labor savings. For complete details, write for individual specification sheet.



GENERAL SPECIFICATIONS

Length	34"
Width	24"
Height Overall	26"
HP of Motor	¼ HP
Net Weight Approx.	250 lbs.
Export Shipping Weight Approx.	350 lbs.
Cubic Feet	16'
Speed Peaches per Min.	60

operation: This machine is designed to operate with any type feeding system, whether it be a belt merry-go-round system, a chute, or from boxes. The standard speed of the machine is 60 peaches per minute. Due to the ease of feeding, the operator can actually place more peaches in perfect alignment than any machine on the market today, thus producing more perfect halves. The spoons or pit holding jaws enter the fruit at the stem end without breaking down the fruit, leaving as perfect halves as possible. The action of the new spoon type pit holding jaws removes a greater amount of split pits and pit fragments, greatly reducing inspection, trimming and repitting labor. This pitter halves and rounds the stem end, and gently removes the pit without disturbing the natural appearance of the pit socket, thus giving high grades.

design: A completely new compact design. Developed over years of careful study and research of the problems in pitting peaches. Its simplicity of design and unique "spooning" action of the pit holding jaws does a remarkable job of removing the pit without mutilating or breaking down fruit, leaving halves with a natural appearance.

ATLAS-PACIFIC
ENGINEERING COMPANY, INC.
1321 67th Street • Emeryville, Calif.

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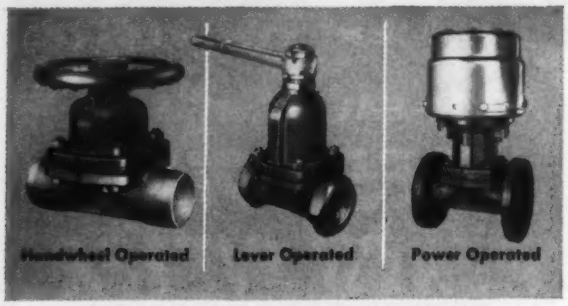
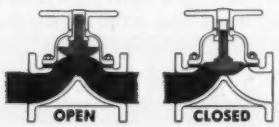


ALL-PURPOSE VALVE

In industries as varied as mining, food, textile, pulp and paper, beverage, water and sewage, chemicals . . . Grinnell-Saunders Diaphragm Valves continue to win enthusiastic acceptance. This valve is unsurpassed for handling such diversified products as corrosive fluids, gases, viscous materials, foods, compressed air, and solids in suspension. The design of the Grinnell-Saunders Diaphragm Valve is unique. The flexible, long-wearing diaphragm presses tight for positive closure.



Grinnell-Saunders Diaphragm Valves are available in a wide range of body and bonnet styles; also body, lining and diaphragm materials.

Choice of Materials

Bodies **— iron; cast steel; stainless steel; Durimet 20; Hastelloy, A, B, C; bronze; Monel; aluminum; PVC (polyvinyl chloride); Saran**

Body Linings **— hard rubber; soft rubber; neoprene; glass; lead; plastics; Heresite; Lithcote**

Diaphragms **— soft natural rubber, natural rubber; white synthetic rubber; neoprene; reinforced neoprene; butyl; Hycar; Teflon; Kel-F; PVC (polyvinyl chloride); polyethylene**

Bonnets **— iron; stainless steel; bronze; other materials on special order**

Choice of Bodies

Conventional weir type.

Straight bodies **— screwed; flanged; socket weld; butt weld; socket (solder); sanitary threads; hose ends; Victaulic**

Angle bodies **— screwed; flanged; socket weld**

Other types

A line of Straightway Valves (for straight-thru flow) and Full-Bore Valves (for ball brush cleaning) also are available.

Choice of Bonnets

Handwheel (non-indicating stem, indicating stem); chain wheel; lever (for quick operation); sliding stem (for a wide selection of power operated topworks)

Write Grinnell for further information.

Grinnell-Saunders Diaphragm Valve

Grinnell Company, Inc.
Executive Offices: Providence, R. I.
Sales Offices and Warehouses in Principal Cities

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association news

Claude R. Miller, president of **Comet Rice Mills,** is heading the rice industry's drive to secure half a million dollars to spend on research and promotion.

New chairman of the Provisions Committee of the **American Meat Institute** is **J. R. Jones,** vice president of **Geo. A. Hormel & Co.,** Austin, Minn. He succeeds R. F. Melchior, president of Agar Packing Co., Chicago. This committee has helped formulate much of the hog and pork program designed to reverse the declining consumer demand for pork.

Pet food manufacturers have taken first steps in forming their own organization, after three years of continued growth under sponsorship of the **American Feed Manufacturers Association.** A committee of some 20 of the most prominent pet food manufacturers has begun drawing up a constitution and bylaws.

The first **National Starch Products, Inc. — Packaging Institute** scholarship has been awarded to **Ralph R. Showerman** of Portland, Mich., a freshman in the packaging curriculum at Michigan State University. Objective of the four-year scholarship is to encourage high school graduates to enter the field of packaging engineering.

H. Garrecht

Hubert Garrecht, president of **Kilnke-Reed Dairies, Inc.,** Memphis, Tenn., was elected president of the **Milk Industry Foundation** at that association's recent 50th annual convention in San Francisco. Other officers elected were: **Gilbert H. Hood, Jr.,** vice president; **E. J. Mather,** treasurer; **John Simpson,** secretary; and **Edgar Brawner,** assistant treasurer.

Would you like to receive FOOD PROCESSING personally?

It will be sent to you without charge or obligation . . .

. . . if you qualify
. . . if you request it

If you are responsible for processing operations in an administrative capacity as plant superintendent, food technologist, chemist, engineer or equivalent responsibility . . . in a plant of substantial operations* where food processing is an important factor . . . FOOD PROCESSING will be sent to you without charge or obligation if you request it. Use form below. In requesting, be sure to answer all questions. If your firm is not rated or listed in standard references, indicate size of the company by capacity, annual sales or number of employees. Unless all information is given, magazine will not be sent.

***"Substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must set standards to insure publication being sent where it can be used to best advantage.**

FOOD PROCESSING
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Please send me FOOD PROCESSING without charge or obligation

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Title _____

Company _____

Rating of Company _____

Street _____

City _____ Zone _____

State _____

Main Products _____

with BUSCHMAN
Portable Conveyors

FEATURING

"QUICK-EEZ"
Coupling

Pick up . . . place . . . in line every time! With both ends the same, BUSCHMAN portable conveyor sections always match. No more swinging . . . no more shifting . . . no damaged hooks. Buschman "QUICK-EEZ" Coupling makes set-up or rearrangement a snap . . . saves time, space, labor . . . yet provides rigid support. Complete line in steel or lightweight aluminum. For conveyor convenience and flexibility, order BUSCHMAN! Immediate delivery from local dealer's stocks.

Write for Bulletin #15 today.

Buschman CONVEYORS

THE E. W. BUSCHMAN CO.
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C-331-EWB

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Give packaging problems the slip...

with SLIPICONE
SILICONE RELEASE AGENT

stops sticking . . . easy to use

Here's a safe, sure way to keep foods from sticking to equipment and "gumming-up" your packaging operations. Just apply *Slipicone* to all containers and equipment that come in contact with food. *Non-toxic—heat resistant—completely safe!*

Slipicone saves you money! Slipicone-treated equipment stays cleaner, more sanitary—speeds your processing—cuts maintenance costs. Ideal for use on all heat-sealing and labeling equipment.

Just wipe or spray it on! Available in 2 and 8 oz. tubes, and 12 oz. spray cans.

Get Slipicone from your paper merchant, packaging materials supplier, or write to

DEPT. 5724

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

CANADA: DOW CORNING SILICONES LTD., TORONTO

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conventions and exhibits

Dec. 14. National Food Brokers Assn. Convention and National Food Sales Conference, Palmer House, Chicago, Ill.

Dec. 26-31. American Association for Advancement of Science, annual meeting, Indianapolis, Ind.

Jan. 20-23. National Canners Assn. and Canning Machinery Supplies Assn., including CM&SA exhibit of canning and freezing machinery, supplies and services, Jan. 18-22, Convention Hall, Atlantic City, N. J.

Jan. 27-30. Plant Maintenance & Engineering Show at International Amphitheatre, Conference at Palmer House, Chicago, Ill.

Feb. 25-26. Sixth annual National Dairy Engineering Conference, Kellogg Center, Michigan State University, East Lansing, Mich.

Feb. 28-*Mar.* 1. Baking Industry Sanitation Standards Committee, Edgewater Beach Hotel, Chicago, Ill.

Feb. 14-16. Institute of American Poultry Industries, Fact Finding Conference and Exposition, Municipal Auditorium, Kansas City, Mo.

Mar. 2-5. National Association of Frozen Food Packers, Conrad Hilton Hotel, Chicago, Ill.

Mar. 3-16. American Society of Bakery Engineers, 1958 annual meeting, Edgewater Beach Hotel, Chicago, Ill.

Mar. 10-13. American Warehousemen's Assn., 67th annual convention, Adolphus Hotel, Dallas, Texas.

Mar. 25-28. Package Machinery & Materials Exposition, Convention Hall, Atlantic City, N. J.

Apr. 7-11. American Assn. of Cereal Chemists, annual meeting, Netherlands Hilton Hotel, Cincinnati, Ohio.

Apr. 22-24. Research & Development Association, Food & Container Institute, Inc., 12th annual meeting, Palmer House, Chicago, Ill.

Apr. 23-25. Pennsylvania Manufacturing Confectioners' Assn., 12th annual production conference, Franklin and Marshall College, Lancaster, Pa.

Reaches and cleans...
WHERE NOTHING ELSE WILL

No other cleaning tool can match SELLERS performance . . . no matter what price.

Illustrated above, SELLERS Hydraulic Jet Cleaner penetrates and cleans several layers of mesh without disassembly . . . because of the hot liquid jet—not vapor or steaming.

Cleans any surface—floors, machinery, conveyors, tanks.

GET THE FACTS . . . *send for Bulletin 424.*

SELLERS Injector CORPORATION
1603 Hamilton Street, Philadelphia 30, Pa. • Since 1848

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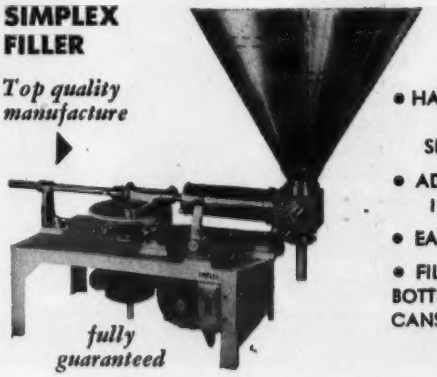
This inexpensive filler does your filling job!

SIMPLEX FILLER

Top quality manufacture



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- HANDLES LIQUIDS AND SEMI-SOLIDS!
- ADJUSTABLE 1 TO 32 OZ.!
- EASILY CLEANED
- FILLS 15 OR 30 BOTTLES, JARS OR CANS PER MINUTE!

Write for circular FP on this Model A filler or on the Simplex automatic fillers

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PHONE KLONDIKE 2-2020

Name .....
Address .....
City ..... State .....

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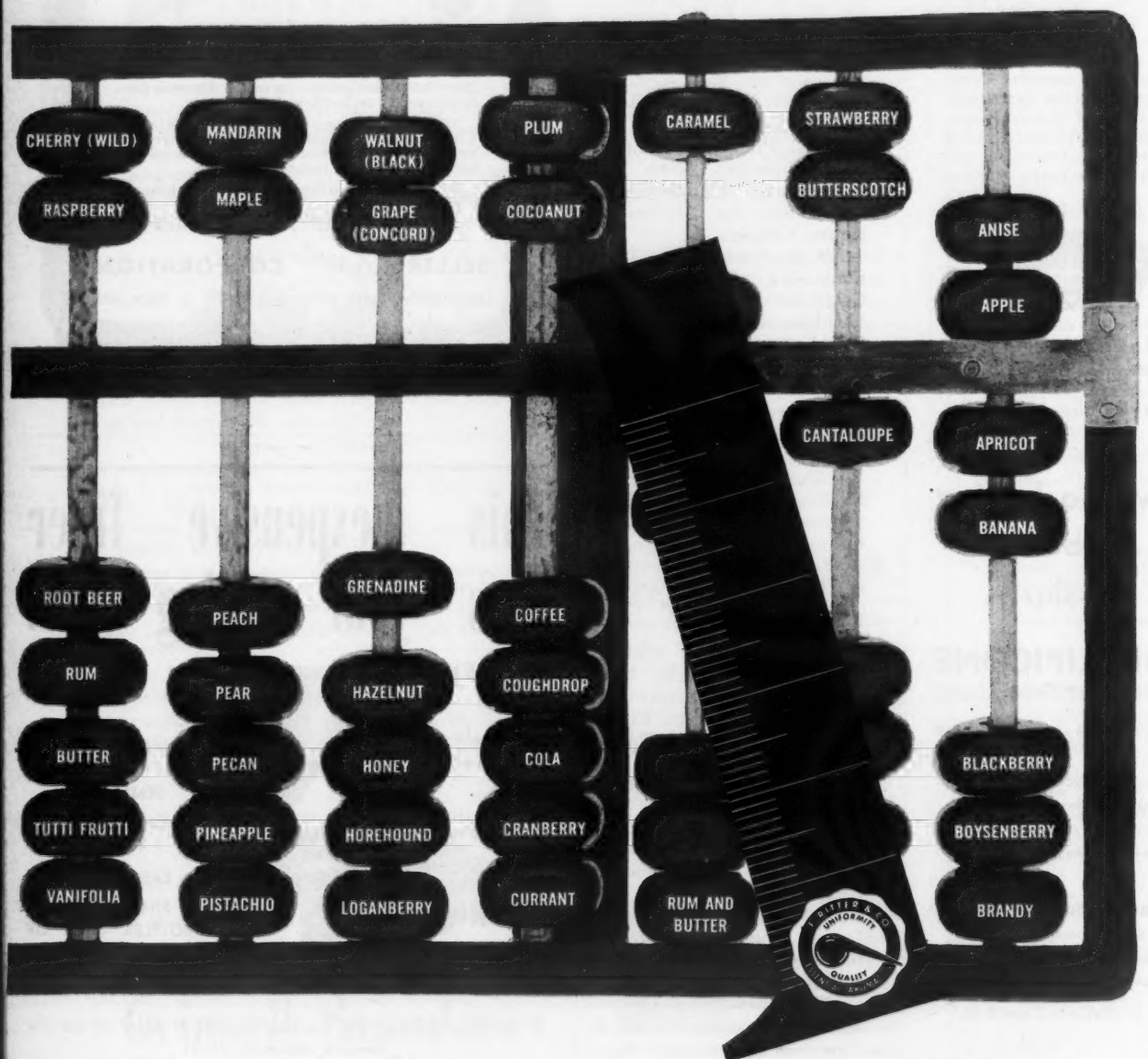
COUNT ON RITTER NEOROMES

for truly accurate imitation flavoring

For accuracy, for uniformity, for a more palatable result, always add Ritter Neoromes to hard candies, beverages, gelatin desserts and pharmaceuticals. We will make any flavor exactly to your order. Phone or write, today!



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RITTER INTERNATIONAL
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Branches throughout the world.

5830 on Reader Service Slip

The men behind the changes

Dynamic force behind the drastic changes at Peterson Manufacturing Co. is R. B. Mortimer, executive vice president and general manager of the company. His forward thinking goes well beyond his own firm. Since November, 1955, he has been president of the National Renderers Association.

Under sponsorship of the association and the USDA Foreign Agriculture Service, he made a market survey trip to Japan and Korea last year. His firsthand report and trouble-shooting in eliminating difficulties regarding weights and quality designations were so well received that he is presently embarking on another tour of Japan. His interest in electronics as a member of the American Radio Relay League sparked installation of industrial TV in the Peterson Los Angeles plant.

Dale Rycraft, Jr., assistant general manager and secretary, has also been very active in establishing automatic rendering and industrial TV at Peterson. A mechanical engineer, he was elected president of the National Association of Power Engineers in 1949, and has just completed his term as president of the International Union of Operating Engineers.

Howard Wallace, a civil engineer, and George Jackson, an electronics engineer, working under the direction of Mr. Mortimer, were instrumental in setting up automatic rendering and industrial TV in the plant. Mr. Wallace drew plans for new equipment and building modifications, as well as a new building for rendering operations, while Mr. Jackson designed, built, and adapted special TV equipment to the automatic system.

Industrial TV supplements automation at Peterson rendering plant

R. B. MORTIMER
Executive Vice President and General Manager
DALE RYCRAFT, JR.
Assistant General Manager
Peterson Manufacturing Co., Inc.

Part I — Industrial TV

Push-button operations mean loss of personal attention to various processing phases. In place of a constant check on each process, remote operations proceed unattended. Industrial TV can overcome this loss, speeding up inspection, sharpening communications, allowing management personnel to scan processes without leaving their offices

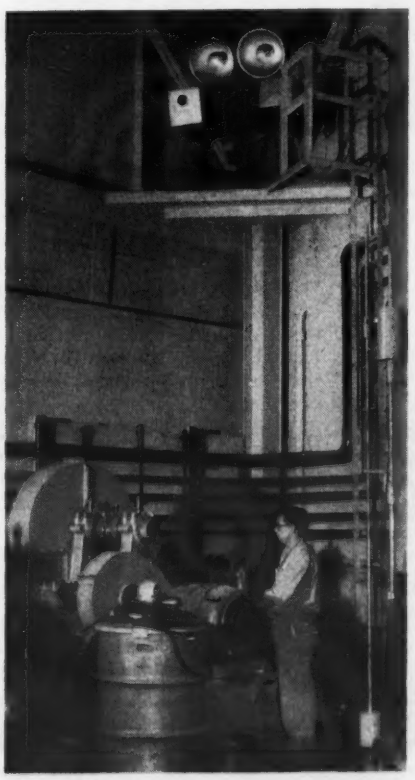
R. B. Mortimer, right, and Dale Rycraft, Jr., Inspect yard operations from chief engineer's office

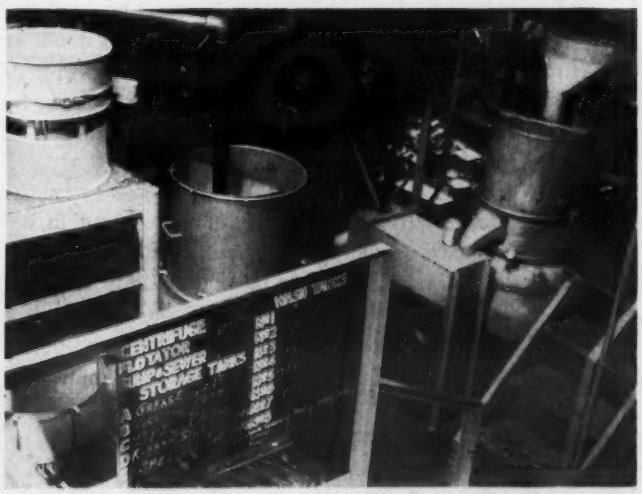
WHEN we decided to automate our Los Angeles rendering plant to the fullest extent practical (see Part II — Push-Button Rendering, page 26) we recognized a need for a new type of supervision to replace the personal attention lost when remote operations are allowed to proceed unattended.

To regain this lost communication, our engineering department installed an industrial television system which allows inspection of all critical plant areas while sitting in either the general manager's or chief engineer's office. At present, eight cameras can be swung into action by remote control. Two cameras are located in the automated meat and bone press cake room to check functioning of a complicated series of automatically controlled batch presses, plus a new material transfer system.

A second pair of cameras, now being relocated because of changes in equipment placement, will scan another automated process—the tallow wash and

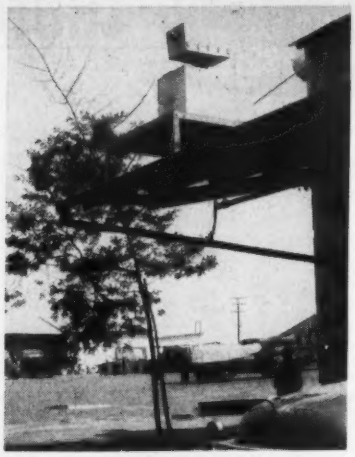
(*Continued on next page*)





◀ Remote controlled camera scans huge automated press-cake room, where complex automated handling system has recently been put into operation

▲ TV camera placement is planned to view tallow clarification operation and control board



Cameras are also used to scan outside operations such as receiving, tallow storage tanks, and gas effluent

Industrial TV supplements automation

Part 1—Industrial TV *Continued from page 25*

flotation system. An additional pair of cameras monitor the attrition mill meters and sacking operations.

Two other cameras scan the receiving system, various yard and loading areas, and allow inspection of stack gases for signs of air pollution.

It was originally intended that the cameras would scan remote instrument boards and production-flow boards in the tallow wash process and other areas, and this idea has been enlarged upon. Provision has been made for future camera installations at other points.

Audio communication with all control centers is also maintained by separate intercom.

The TV system was planned and installed by our electronics engineer, George C. Jackson. A basic monitor chassis and components were obtained. Controls for remote cameras, consisting mainly of toggle switches, are arranged on a panel beneath cabinet built to house monitor, as shown in photo taken in the chief engineer's office. Gear trains for panning vertically and horizontally were connected to fractional hp motors. Limit switches control extent of "panning" movement of the cameras.

Television monitor system is a product of Conrac, Inc., 19217 East Foothill Blvd., Glendora, Calif.

Television cameras were manufactured by Radio Corporation of America, RCA Bldg., 30 Rockefeller Plaza, New York 20, N. Y.

A directory listing several manufacturers of industrial television equipment will be found on page 40 of this issue.

Part II — Push-Button Rendering

It is common knowledge that the rendering business has been backward in developing and applying new methods. Manufacturing, processing, and collection costs have continually risen during the last two decades, while selling prices have not increased proportionately. This has cut operating margins to the bone.

With these thoughts in mind, R. B. Mortimer, executive vice president and general manager, Peterson Manufacturing Co., Los Angeles, called his staff together and presented the problem. He left no doubt as to his intent. He wanted to do away with "horse-and-buggy" methods, and to catch up with the times by developing a new, modern, clean, and efficient method of handling products.

Months of investigation and study were put in before automatic rendering, supplemented by industrial TV, was decided upon as the best method for achieving the desired result. Once the decision was made, work was completed while the plant remained operating at peak capacity — 24 hrs/day, 7 days/wk. Shutdowns of three to four hrs/wk were the only interruptions tolerated. The entire project, as reported here, has resulted in what Mr. Mortimer calls "the world's most modern rendering plant".

—EDITOR

Converting from the "horse-and-buggy" methods commonly used in rendering to a new system of push-button control and mechanical handling offers numerous advantages. Such an automatic system . . .

- **Uses a double control console to weigh in raw materials and route them through all operations**
- **Requires almost no labor in receiving, cooking, and pressing operations**
- **Offers new tallow washing and polishing operations — wash water reused continuously**
- **Loads out 20-ton truck in 9½ min, complete with printed billing weight**

BEFORE converting to push-button rendering, we used a conventional system. Incoming trucks were weighed, gross entered on a form, and trucks unloaded by the shovelful. Trucks then returned to scale, where net weight was recorded manually. Incoming material was ground and conveyed to cookers, with entire operation under manual control. Rendered tallow required several operators going from floor to floor to operate valves, inspect, and control system.

Meat and bone meal from cookers were conveyed to individual French curb presses (1130-ton). After rendered material was pressed, resulting press cakes (discs 1" thick by 30" dia) were carted by hand trucks to storage room for manual stacking until cool. Cooked cakes were then hand-loaded on carts, weighed, and wheeled to cake breaker. As cakes were fed into breaker, pork cracklings were added by shovel. Broken material from breaker was raised by rotolift to second floor hummer screen. Screened material was conveyed to mixing bin for sacking and storage.

Changes in rendering operations

In our new operation, incoming trucks are gross-weighed, dumped, and tare-weighed in place (Fig. 1). Scale platform dumps trucks by elevating entire unit hydraulically. This entire receiving operation is controlled from an air-conditioned

Fig. 1. Scale platform weighs incoming trucks, then dumps them hydraulically

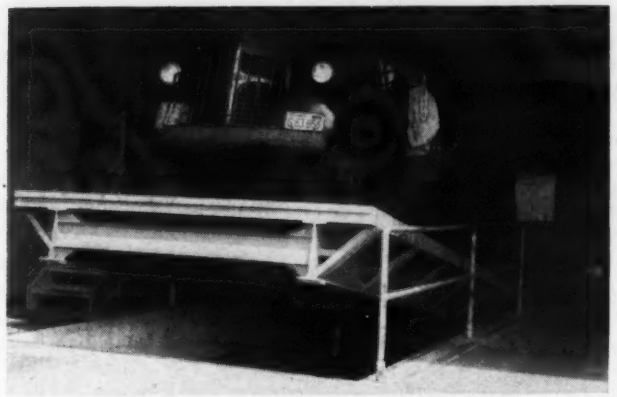


Fig. 2. Air-conditioned control room overlooks receiving operation. Process control panel is at right, scale and receiving controls at left

control room overlooking the two receiving-unloading scale platforms (Fig. 2).

Same operator also controls the material through a hog grinder, and into either of two receiving tanks. Graphic control panel (Fig. 3) controls movement of raw materials via enclosed conduit to any one of a battery of preheaters.

At another console in the same control room (Fig. 4), a second operator takes material from preheaters and transfers it to a selected cooker. This panel provides operator with temperature, flow, and pressure readings, and by means of indicating lights shows him status of each valve in system. Cookers are dumped by push button from this console, and material conveyed to draining boxes. Solids are conveyed to presses, and tallow is pumped to tallow clarification department. Around 40 air-operated gate valves, such as shown in Fig. 5, are actuated from main control room.

New press cake system

In a new patented system, practically all manual handling of press cakes has been eliminated. The breaker operation has been integrated with the curb presses. A motorized truck moves to any selected press and positions itself. Material is then discharged through breaker into a conveyor, which cools product as it moves to holding bin.

Materials from holding bins are blended through a screw arrangement, so that material from 36 different points in holding bin are conveyed to two attrition mills. From attrition mills, material is conveyed by means of a pneumatic system to hummer screens, thence either to the mechanized sacking operation or to glass-coated steel storage tanks.

20-ton truck loaded, billed in 9½ minutes

From storage bins, the mixed meat and bone meal is conveyed by enclosed drag-type conveyor to a 20-ton shipping scale hopper. Scale hopper is equipped to automatically print the weights on shipping ticket. By

(*Continued on next page*)

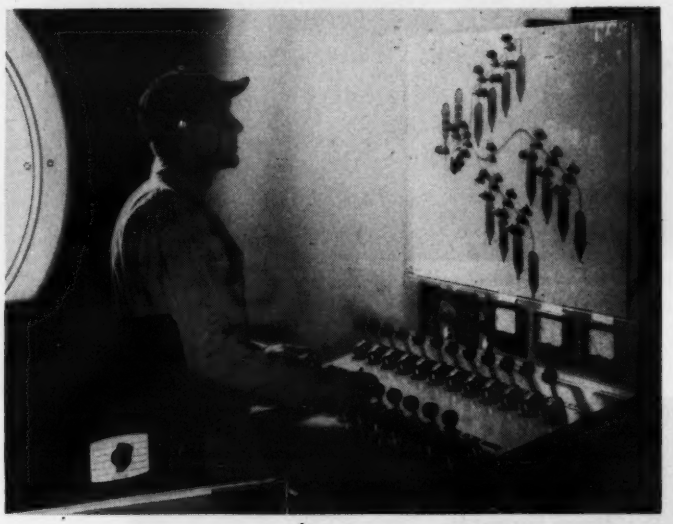
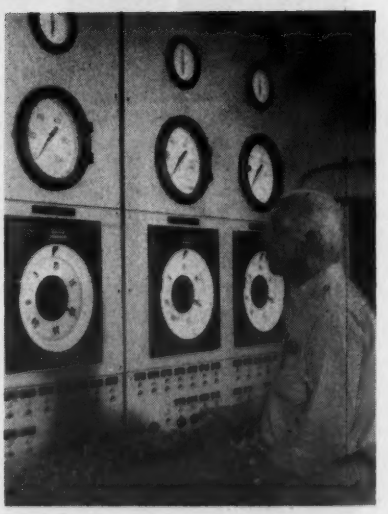


Fig. 3. Incoming materials, after being weighed, ground, and conveyed to receivers, are then moved to preheaters via this console

Fig. 4. Process control panel checks temperatures, pressures, and flow in process. Also controls materials through cookers to separator bin and press operations



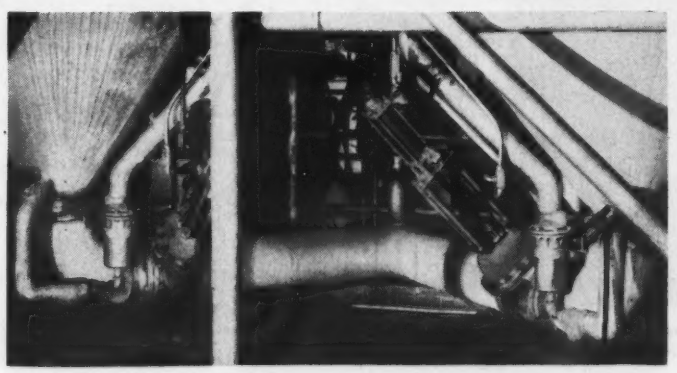


Fig. 5. Air-actuated cylinders open or close 8" gate valves throughout plant at flick of a switch

Fig. 6. In clarification room, vibratory separators (top center) screen hot tallow before it enters self-cleaning centrifuge at left

flick of a switch, weigh bin can be charged from storage bins, then discharged directly into truck or railway car beneath, and shipping bill printed. Entire 20 tons can be loaded and billed in 9½ minutes.

If sacked product is desired, material from storage goes to sacker scale. Sacks are filled and discharged at about 12/min. An electric eye counts sacks as delivered by chute to truck or rail car.

Cleans fatty wastes, reuses water

Tallow wash system was formerly a problem. Insolubles are washed from the tallow, but some carry-over of fatty waste is inevitable. A few years back, this material went down the sewer. Now, tallow wash water is cleaned so thoroughly it is reused continuously in the process.

(*Continued on page* 40)

Major suppliers of equipment in new rendering operations at Peterson were:

Glass coated steel storage bins:
A. O. Smith Corp., 3533 N. 27th St., Milwaukee 1, Wis.

Attrition mills:
Bauer Bros. Co., Springfield, Ohio

Pneumatic conveying system for ground meal:
Sprout-Waldron Co., Inc., Muncy, Pa.

"Bulk-Flo" drag conveyor systems; "Rotolift" screw conveyor systems; hydraulic truck dumper; and 20-ton bulk-shipping scale:
Link-Belt Company, Prudential Plaza, Chicago 1, Ill.

Scale systems for receiving docks and 20-ton bulk-loading scales:
Hardy Scales Co., 5701 Atlantic Blvd., Maywood, Calif.

Remote control valves:
Gate Valves: Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

Valve actuators:
Ledeen Mfg. Div., Ledeen, Inc., 3350 N. Gilman Rd., El Monte, Calif.

Flotation waste recovery separator:
Process Engineers Div., The Eimco Corp., 420 Peninsular Ave., San Mateo, Calif.

Vibratory screen separators in tallow recovery system:
SWECO Separator Div., Southwestern Engineering Co., P.O. 58264, Vernon Sta., Los Angeles 58, Calif.

Continuous de-sludging centrifuges in tallow recovery system:
The DeLaval Separator Co., Poughkeepsie, N. Y.

Fig. 7. Dissolved air flotation separator removes last traces of fat and protein from clarifier wash water. Water is then reused in process

Fig. 8. 20-ton automatic loading scale, left, loads outgoing trucks and prints total weight in 9½ min. Scale straddles tracks for railroad car loading

KRAFT FOODS ORDERS 5½ MILLION ALUMINUM CANS

- **A lightweight aluminum can, produced with seamless body and bottom in one piece, will be used by Kraft Foods to package grated American and Parmesan cheese**

- **Manufacturing process for producing the cans, which involves deep drawing aluminum sheet in a single stroke, opens numerous possibilities to food processors for packaging in aluminum containers**

These aluminum containers for Kraft's grated Parmesan and American cheeses will appear in grocery stores within a few months. Shaker top closure is knurled for easy opening and closing

KRAFT Foods Division of National Dairy Products Corp., has placed an order with Kaiser Aluminum for over five million aluminum cans to package grated American and Parmesan cheese.

According to C. W. Kaufman, National Dairy's research director, the aluminum cans, made by a new process which produces a seamless body and bottom in one piece, are ideally suited to Kraft's grated cheese products. Protective qualities and attractive appearance of the new container offer distinct advantages over the previous package, a paperboard cylinder with a tinplate top and bottom.

Mr. Kaufman explained, "The new aluminum can more effectively maintains a desirable moisture content in the cheese and increases shelf life. From the merchandising standpoint, we believe the aluminum can will have greater appeal due to its bright and handsome appearance.

"This advantage is particularly important in large self-service markets where impulse buying is a major factor in sales volume. We also expect the new can to be popular with the housewife, since it will make an attractive addition to the dinner table."

New process used in making aluminum cans

The new manufacturing process used for making these aluminum cans is known as the "deep draw process". Deep drawing involves the shaping of a flat disc of sheet aluminum into a hollow vessel by pressing the metal into a series of dies. By applying pressure on the sheet, the metal is made to flow in a direction parallel to each die face, thus producing a smooth-walled shell.

Previously, using conventional drawing methods, it has not usually been possible to perform a greater draw then 50 percent of the diameter in one stroke. Thus, several forming operations were required to bring the can body to its desired shape and size.

Under the new process, however, the can body may be formed in a single operation, making it possible to produce a seamless can with a depth of up to three times the diameter in a single stroke. Following formation of the body, the can is then trimmed and flanged. Top is stamped using conventional equipment and is sealed after being filled with the product it is to contain.

The new technique also makes it possible to produce rigid, durable cans with walls as thin as 0.005" thick. Cans for Kraft's Parmesan grated cheese are being made in two heights — 3-5/16" for the 1½-oz size, and 5-11/16" for the 3-oz size. American grated cheese will be packaged in one size only, the 3-5/16" cans. Cans for both products have an internal diameter of 1.89" and a body wall thickness of 0.009".

Aluminum can advantages

Cans made by this method offer a great deal of protection, since fabrication of a seamless can body from a single disc of

(*Continued on page 69*)

Fig. 2. Carrier boat waits at a weir to load at sunrise

Maine sardine industry shows...

How To Upgrade Product Competition Profitably

Offering a quality control service for the entire industry, the Maine Sardine Council, through its research and quality control laboratory, issues a weekly grading report to all members. Through this report, which shows the average grade of packed sardines for all plants, owners and managers can compare the quality level of their product with that of competitors. In this way, they can then pinpoint and correct any processing problems

DR. BERTON S. CLARK
Research Director
Maine Sardine Industry Research
and Quality Control Laboratory

At the end of each week during the Maine sardine canning season, each plant manager or owner of a firm belonging to the Maine Sardine Council receives a grading report (Fig. 1) showing the average quality level of sardines packed by all members for that week. This report may be used as a comparison with his own operations in determining where he stands with the overall sardine industry in Maine.

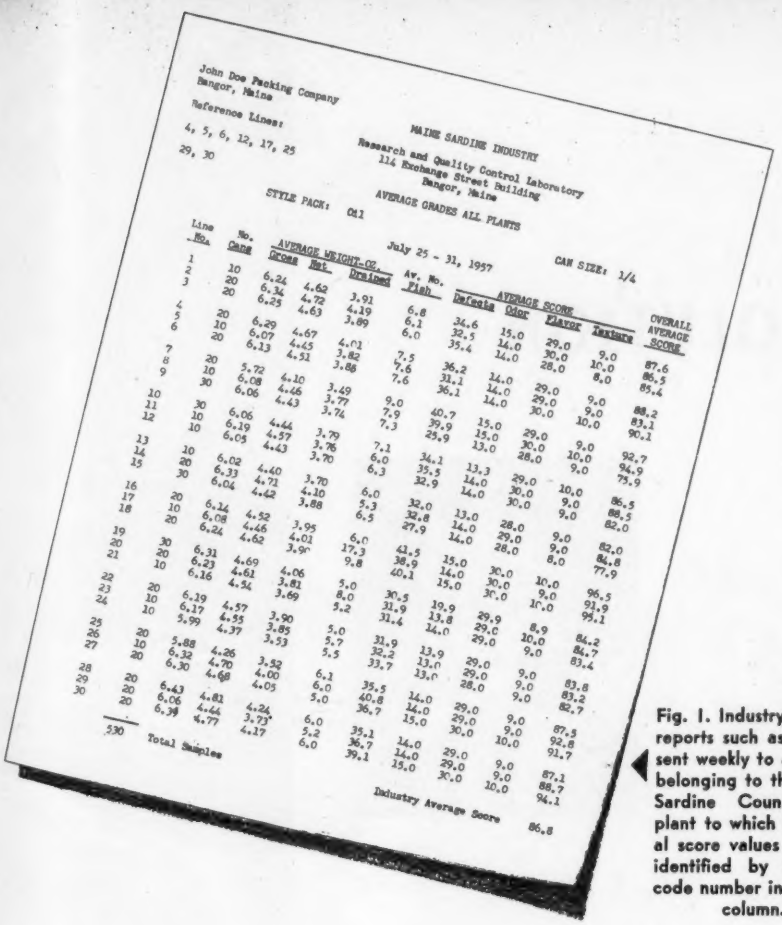
To prevent revealing the identity of the competitor, the plant to which individual score values apply is identified by a line code number. Each plant manager or owner is given the line codes which apply to his product only.

Procedures of grading

In providing this day-to-day check on individual plant operations and plant-to-plant performance comparisons, definite procedures have been established. All lots of sardines are identified by a code number embossed in the cover of each can. Samples representing each code lot are taken by the state inspector and shipped by parcel post to the research and quality control laboratory in Bangor, Maine.

A history sheet showing name of company, style pack, date of pack, brand name, size of can, source of fish, how caught, name of boat, and other information pertinent to the final packed product is attached to each lot of samples.

At the laboratory, samples are graded on a score basis for various factors such as absence of defects or workmanship, odor, taste and flavor, and texture. Three acceptable grade levels are recognized — standard, extra standard, and fancy. Grading rules include limiting factors



John Doe Packing Company
Bangor, Maine

Reference Lines:
4, 5, 6, 12, 17, 25
29, 30

MAINE SARDINE INDUSTRY
Research and Quality Control Laboratory
114 Exchange Street Building
Bangor, Maine

STYLE PACK: Oil — AVERAGE GRADES ALL PLANTS — July 25 - 31, 1957 — CAN SIZE: 1/4

Line No.	No. Cans	Average Weight-Oz. Gross	Net	Drained	Av. No. Fish	Average Score Defects	Odor	Flavor	Texture	Overall Average Score
1	10	6.24	4.62	3.91	6.8	34.6	15.0	29.0	9.0	87.6
2	20	6.34	4.72	4.19	6.1	32.5	14.0	30.0	10.0	86.5
3	20	6.25	4.63	3.89	6.0	35.4	14.0	28.0	8.0	85.4
4										
5	20	6.29	4.67	4.01	7.5	36.2	14.0	29.0	9.0	
6	10	6.07	4.45	3.82	7.6	31.1	14.0	29.0	9.0	88.2
	20	6.13	4.51	3.88	7.6	36.1	14.0	30.0	10.0	83.1
7										90.1
8	20	5.72	4.10	3.49	9.0	40.7	15.0	29.0	9.0	
9	10	6.08	4.46	3.77	7.9	39.9	15.0	30.0	10.0	92.7
	30	6.06	4.43	3.74	7.3	25.9	13.0	28.0	9.0	94.9
10										75.9
11	30	6.06	4.44	3.79	7.1	34.1	13.3	29.0	10.0	
12	10	6.19	4.57	3.76	6.0	35.5	14.0	30.0	9.0	86.5
	10	6.05	4.43	3.70	6.3	32.9	14.0	30.0	9.0	88.5
13										82.0
14	10	6.02	4.40	3.70	6.0	32.0	13.0	28.0	9.0	
15	20	6.33	4.71	4.10	5.3	32.8	14.0	29.0	9.0	82.0
	30	6.04	4.42	3.88	6.5	27.9	14.0	28.0	8.0	84.8
16										77.9
17	20	6.14	4.52	3.95	6.0	41.5	15.0	30.0	10.0	
18	10	6.08	4.46	4.01	17.3	38.9	14.0	30.0	9.0	96.5
	20	6.04	4.62	3.90	9.8	40.1	15.0	30.0	10.0	93.9
19										99.1
20	30	6.31	4.69	4.06	5.0	30.5	19.9	29.9	8.9	
21	20	6.23	4.61	3.81	8.0	31.9	13.8	29.0	10.0	84.2
	10	6.16	4.54	3.69	5.2	31.4	14.0	29.0	9.0	84.7
22										83.4
23	20	6.19	4.57	3.90	5.0	31.9	13.9	29.0	9.0	
24	10	6.17	4.55	3.85	5.7	32.2	13.0	29.0	9.0	83.8
		5.99	4.37	3.53	5.5	33.7	13.0	28.0	9.0	83.2
25										82.7
26	20	5.88	4.26	3.52	6.1	35.5	14.0	29.0	9.0	
27	10	6.32	4.70	4.00	6.0	40.8	14.0	29.0	9.0	87.5
	20	6.30	4.68	4.05	5.0	36.7	15.0	30.0	10.0	92.8
28										91.7
29	20	6.43	4.81	4.24	6.0	35.1	14.0	29.0	9.0	
30	20	6.06	4.44	3.73	5.2	36.7	14.0	29.0	9.0	87.1
	20	6.39	4.77	4.27	6.0	39.1	15.0	30.0	10.0	88.7
	530	Total Samples								94.1

Industry Average Score 86.8

Fig. 1. Industry grading reports such as this are sent weekly to all plants belonging to the Maine Sardine Council. The plant to which individual score values apply is identified by the line code number in the first column.

Fig. 3. Fish are transferred from water to the hold of the carrier boat by means of a fish pumping system. Large pipe in center foreground is a flexible connection in the system

which may reduce the grade level below that indicated by the average score. For example, any lot containing cans which do not meet state or federal requirements will be graded below standard, regardless of average score for the lot.

These score sheets are prepared in triplicate. As soon as the grade has been established, one copy is mailed to the plant where the sardines were packed, one is mailed to the head office of the canning company which owns the plant, and the third is retained for laboratory files. At the end of each week, average scores for all lots graded during the week are listed, making up the weekly grading report.

Periodically during the season and at the end of each season, grade data is summarized and analyzed to reflect the influence of individual factors on quality level and to permit over-all analysis of industry and individual plant performance. An IBM punch card system is used to facilitate this part of the project.

Sardine canners express views on program

Since 1955, when the quality control program was set up, approximately 125,000 sample cans have been graded for quality in accord with the procedures outlined above. The grade data have reflected both industry and individual plant performance. They have stimulated competitive effort and provided guidance for realistic operating adjustments. Members taking part in the grading operations have expressed their satisfaction in the program. We have received many letters confirming our initial feeling in setting up the program. Here are a few statements from some of these sardine canners:

"Our company operates several plants, and we find the weekly grading reports to be of tremendous value to our entire organization. They help headquarters management to keep a close check on the various plant operations, which increases efficiency all along the line, as well as to stimulate a friendly but serious competitive spirit among our plant managers. This all adds up to better quality and a more salable product."

"My company operates but one plant, but the grading program has taught us a lot we never knew about packing sardines. Through the daily and weekly reports, we are able to keep a check on the quality status of our production, as compared with the entire industry. When we find ourselves doing a poor job, our next step is to look for the reason. On many occasions, we have called in Dr. Clark or his assistants and they have helped us to pinpoint and correct the trouble."

"In our opinion, the grading program has uplifted the over-all quality of the Maine sardine pack to a surprising degree. Prior to this effort, we sardine canners spent too little time cutting samples of our production, and left too much of this up to the consumer. We believe the technological research phases of Dr. Clark's work to be fully as important as the grading. They are a pair of activities that are essential in any food processing industry today."

Finally, the data gathered from these grading reports have also focused attention on areas of manufacturing processes which require research action, leading to comprehensive investigations in such fields as bacteriology, chemistry, histochemistry, enzymology, engineering, antibiotics, and flavor evaluation, which are yielding helpful and constructive information.

Changes of great magnitude and importance from range through feed lot through processing plant through retail store, down to and including new ways of handling meat in the consumer kitchen portend a

MEAT INDUSTRY REVOLUTION*

- **Poultry integration sets pattern**
- **Ranches become corporations**
- **Feeders put cheapest pounds on steer**
- **Improving breed of cattle still in infancy**
- **Consumers want non-fatty but tender meats**
- **Chemical tenderizers may alter entire industry**

J. Earl Coke

J. EARL COKE
Vice President, Loans and Investments
Bank of America
(formerly Assistant Secretary of Agriculture and Director, Commodity Credit Corporation)

Mechanization, chemicalization, hybridization, and use of credit (or capitalization) have revolutionized agriculture. Among important changes now underway, or within sight, is an unusual surge of industry integration in agriculture. The impetus of what has come to be called "agribusiness" is generated from many sources. Most important, perhaps, is the need to secure a stable volume of raw product to the processor, and need to secure a continuous market for the product. Important, also, are the possibilities of spreading risks by integration, and of increasing efficiency by increasing size of operation and integrating functions.

Poultry integration sets pattern

The poultry industry is impressive in scope of integration. A large company (usually a feed firm), to secure a large and stable market for its product, joins with the poultry breeder (hatchery) to supply growers with both birds and feed on credit. To secure their investment, they frequently offer management services to growers. Thus, with very limited capital, the grower has been able to mechanize and expand his operation to where one man can handle as many as 60,000 broilers at one time. He takes a minimum of price risk and makes a minimum of decisions. In some instances, the feed company has also gone into the processing end of the business, since it already has a captive supply of birds.**

Complete integration of the producer end of the process, such as has occurred with poultry, is not yet evident in the beef industry — nor is it likely to be so. The huge capital investment, plus the management complexity arising out of the vastness of the geographic area involved, almost precludes the poultry industry's kind of integration.

*Based on an address delivered September 20, 1957, before The Livestock Session, 52nd Annual Meeting of The American Meat Institute, Palmer House, Chicago.

**Many cattlemen are realizing that their number one problem is to meet the growing competition with poultry. One New York market chain reportedly sold as many pounds of poultry during a recent month as it sold pounds of beef.

Ranches become corporations

In place of complete integration in the beef industry, we will likely continue to see increased use of the corporate entity in ranching, and the combining, under one operation, of ranches in different geographic areas. Such measures provide seasonal specialization of forage supply and a degree of protection from the severe losses arising from drouth cycles in particular areas. The corporation has several other advantages: (1) It can provide a continuous supply of capital for operation and expansion; (2) the continuity of the ranch as a going concern is not dependent upon the continuity of specific individuals; (3) it provides greater tax flexibility.

In addition to increased use of the corporation as a form of ranch organization, we are finding more large feed yards tying in financially with cattle ranches and range operations.

Feeders put cheapest pounds on steer

People familiar with the total beef picture agree that feeders have made greater progress to-

Today's cowboy is likely to be an employee of a large, well-capitalized ranching "corporation"

ward increasing efficiency than have other sectors of the industry. It is no longer unusual to find instances where the pounds put on in the feed yard are the cheapest pounds on the steer. With extensive use of stilbestrol, increased use of vitamins and antibiotics, and increased skill and machinery for mixing feeds and feeding livestock, low-grade feeds once wasted are now used effectively.

In my own state of California, far-reaching changes are taking place in the whole livestock and meat industry. I suspect that what is happening here might provide clues as to future national trends of the industry.

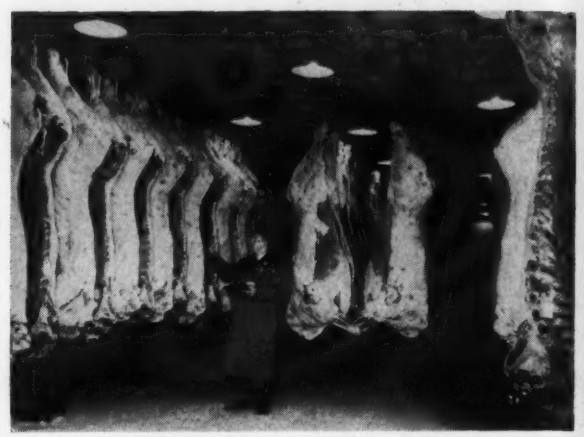
In supplying California retail outlets — large supermarkets — packers need a heavy and steady supply of good and choice cattle moving into their plants. To gain this supply, they have gone directly to feed yards, either to feed their own cattle or to obtain finished cattle from other feeders. Several of these yards feed out more than 50,000 head annually — mostly for other feeders. About 90 percent of cattle on feed January 1, 1957, were in yards of 1000 or more head. Economic studies show that cattle feeding as practiced in California is a decreasing cost industry with respect to size. Thus, feed yards can be expected to grow even larger.

Although the trend has been for more and more cattle to be finished in feed yards before slaughter, it also is toward less finish on each animal. There are fewer *prime*-finished cattle, and an increasing number of cattle finished to grade *good*. This is occurring in spite of a still existing bottleneck of the industry — the purebred breeder. A continu-

(Continued on next page)

The cheapest pounds on the steer are added in feed yards such as this—result of new efficiency in enriching feeds, permitting use of large supplies of low-quality grains

Providing tender and tasty cuts from presently undesirable portions of the carcass is the goal in present studies on chemical and enzymatic tenderizers



ing problem is to convince the purebred breeder that *efficiency of gains* is the primary problem of the rancher and the producer — far outweighing color markings, breed type, style, and similar "triffles".

Improving breed of cattle still in infancy

Right now cattle breeders are a long way behind (poultry breeders) in a very important race. The entire industry should know, for example, how closely efficiency of gains is linked to body conformation. And we should know more than we do about what products should be brought to market.

I am intrigued by a recent announcement that animal breeders have successfully removed fertilized embryos from pregnant cows and implanted them into other cows, the latter giving birth to the former's offspring. By this means a cow capable of transferring highly desirable characteristics to her offspring could be made to produce perhaps 10 calves a year, or 100-150 calves in her lifetime. By means of this technique, the cattle industry need not lag far behind the hog industry in the speed with which desirable characteristics can be introduced into breeding herds.

This new technique seems especially designed to be used with dairy cows in such concentrated areas as the Los Angeles milk shed. For the most part the dairy calf in these areas is of relatively little value — a necessary by-product of bringing the cow into lactation. If, however, these dairy cows can be impregnated with high-quality beef embryos a new business of supplying much-sought-after beef calves could easily develop. Without such a development as this, beef calves are likely to be at almost as high a premium in the future as they are this year.

Customers want non-fatty but tender meats

A number of studies have been made in recent years to determine kind and quality of meat most preferred by consumers. Without reference to price or grade, housewives were asked on the basis of appearance alone, in one such study, which cut of meat they preferred, and why. Generally speaking, the good, and even commercial grades were preferred over the choice or prime grades. Why? One reason. *There was less fat.* Women are very conscious of excessive fat on meat — first from the standpoint of waste; secondly, from the standpoint of obesity and general family health.

In a subsequent cooking test, however, conducted by the University of Missouri, the quality grades came out almost unanimously on top. The principal reason given was that it was more tender. *Consumers want tender meat.*

The livestock industry has several effective methods of tenderizing meats. One, known as "marbling", is done in the feed yards. But this method is costly and rather wasteful. Another is to age meat at warm temperatures. But, the problem of microbic control renders this method either economically impractical or gastronomically dangerous. Without question, the most popular form of tenderizing is the famous mechanical tenderizer — the meat grinder. Nearly 45 percent of the total beef supply is thus tenderized, and sold as hamburger. Processed meat products are another type of mechanically tenderized meats. With both hamburger and processed meats, however, the meat changes form so that it no longer appears as steaks and roasts, which we all desire so strongly.

Chemical tenderizers may alter entire industry

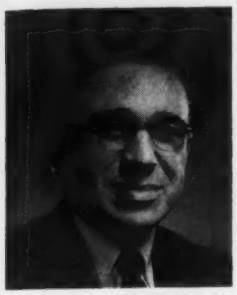
One need only reflect on the popularity of mechanically tenderized meats to picture what the future might be for chemical or enzymatic tenderizers now being introduced. Last spring, a group of advisers met with the Fact Finding Committee of the American Cattlemen's Association to consider the problems of the cattle industry. This is what they said about tenderizers:

> "We believe that one of the most far-reaching developments that will be affecting the meat industry is present research on development of tenderized meats . . . . Various kinds of tenderizing techniques are being researched and tested. It may be tenderizing in the carcass or . . . in the final consumer cut, but just let your imagination run as to what it would mean if beef carcasses with far less than present degrees of finish required to get tenderness could be processed in such a way as to turn out a tender steak or a tender roast from many muscles of a carcass which now do not have desired degrees of tenderness. When this comes, it probably is going to affect the total beef industry from the range through the feed lot, through the processing plant, through the retail store, down to and including new ways of handling meat in the consumer kitchen." Note, they said *when* this comes, not *if* this comes.

I presume the quality-meat connoisseur or fancier (and those who are financially beyond the press of economic considerations when making consumer decisions) will still seek and be willing to pay for costly prime finishing. But the great bulk of consumers will be strongly attracted to the kind of product and pricing that might result from tenderizers.

Another advantage of tenderizers is that by chemically tenderizing in the carcass, packers could materially cut down on the time for aging, thus reducing the cost of carrying large inventories. Packers can tenderize, cut, trim, and package more efficiently than can the retailers or consumers, so that ultimately, with the increased standardization made

(Continued on page 41)



CHARLES B. SHUMAN,
General Chairman
President, American Farm Bureau Federation

HOMER R. DAVISON,
Chairman
President,
American Meat Institute

Historical first . . .

NATIONAL FOOD CONFERENCE

Physicians, nutritionists, educators, industrialists meet to reawaken nation to essentials of good nutrition

On February 24, 1958, in Washington, D.C., President Eisenhower will open the National Food Conference — an assembly of leaders of American agriculture, industry, and education — gathered to consider the vital role of food in the life of the family and the nation.

Designed to reawaken the public to the essentials of an adequate and balanced mealtime diet, this first-of-a-kind Conference will translate the verities of nutrition into the realities of the family table. While it is true that all Americans eat, many do so without plan or purpose, acquiring only a fraction of the food value necessary to a full and complete life.

The Conference is presented as a service to the general public without emphasis as to product and without mention of brand. One thousand invited guests, comprising leading personalities from every area of business and the professional world, will participate in this significant review of the nation's eating habits.

Included in the program will be reports by health authorities on latest researches in nutrition, discussions by industrialists on contribution of food to the national economy, physicians, educators, and experts in family living will explore the role of food in the varied aspects of American life.

Highlights of the Conference program include:

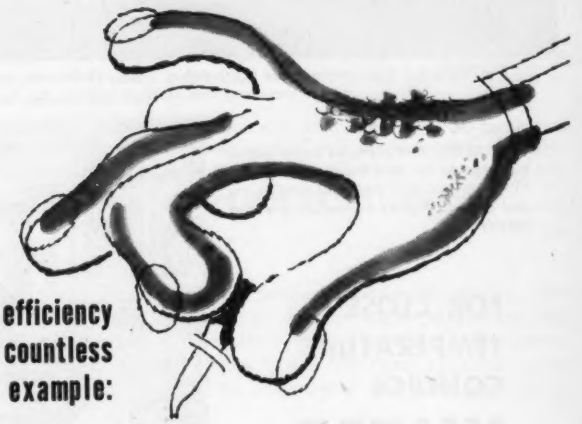
- Address of President Dwight D. Eisenhower
- The Physician Looks at Food
- The Educator Looks at Food
- Food and the Family
- Address by Sec. of Agriculture Ezra Taft Benson

(*Continued on page* 37)

DOW CORNING

SILICONE

DEFOAMERS



have proved their efficiency and versatility in countless applications. For example:

1 OUNCE KILLS FOAM IN . . .

8,333 lb meat sauce

15,625 lb dill pickle processing solution

35,000 lb vitamin B_2

250,000 lb molasses

Just a few drops of Dow Corning Antifoam A Compound or Antifoam AF Emulsion can prevent mountains of foam . . . enabling you to utilize full productive capacity and put your processing into high gear. What's more, when you control foam, you eliminate the mess and waste of boilovers. Whatever *your* foaming problem, a Dow Corning SILICONE DEFOAMER will help solve it at amazingly low cost.

FREE SAMPLE and INFORMATION—
To receive a generous trial sample of a Dow Corning Silicone Defoamer, return coupon below or write on your letterhead. No obligation, of course.

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

5724

NAME

TITLE

COMPANY

CITY ZONE STATE

My foamer is

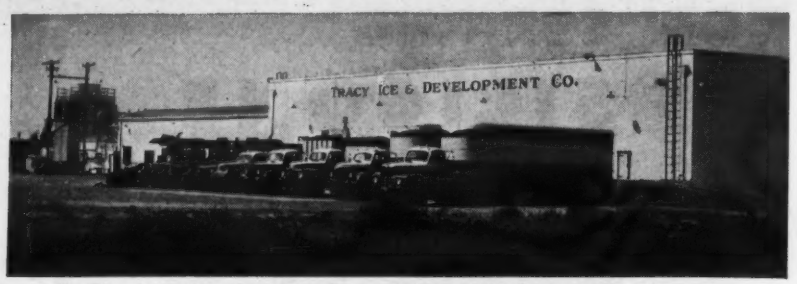
Oil system

Aqueous system

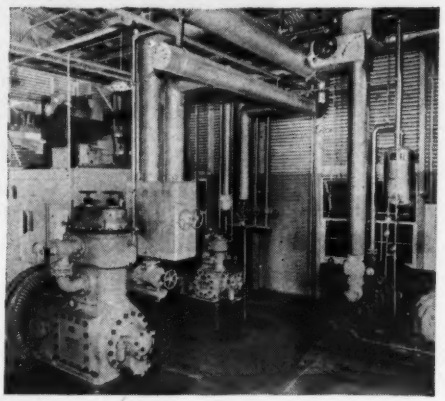
Food products

Other

5832 on Reader Service Slip



The Tracy Ice and Development Company of Tracy, California, specializes in ice making and in providing cold storage facilities for fruit.



View of the Tracy engine room showing three of the four Vilter compressors. Vilter vertical shell and tube condensers and an evaporative condenser are also installed.

FOR CLOSE TEMPERATURE CONTROL VILTER REFRIGERATION WINS CUSTOMER CONFIDENCE

● Since its establishment, the Tracy Ice and Development Company of Tracy, California, has depended upon Vilter compressors to supply the refrigeration for ice making and storage. So last year when the company management decided to build an addition to their plant for pre-cooling peaches and pears, another Vilter compressor was purchased to handle the new load. Special electronic temperature control devices were also installed.

The required storage temperature for the pears is 29° F., plus or minus 1° F. For the peaches the required temperature is 32° F., plus or minus 1° F. Conditions for the job also required that the peaches and pears must be chilled to the 32° F. or 29° F. point within a 24-hour period.

The Tracy Ice and Development Company reports its customers are highly pleased with the perfect condition of the fruit, pre-cooled and stored by them. The even temperature and humidity keeps the fruit in perfect condition and top quality for canning and market. The Tracy Company knows this close temperature control demands reliable equipment—the type of reliability a customer gets when he buys Vilter.

Call on Vilter for help on your refrigeration problem.

Sold and installed by Refrigeration Machinery Corporation, Vilter Distributor in Wilmington, California.

Write for these helpful bulletins to The Vilter Manufacturing Company, Dept. D-705, 2217 S. First Street, Milwaukee 7, Wisconsin.

Bulletin 732 Vilter Evaporative Condensers

Bulletin 617 Vilter VMC Ammonia Compressors

Bulletin 707 Vilter Condensers, Brine Coolers and Heat Exchangers

Vilter®

REFRIGERATION and AIR CONDITIONING

THE VILTER MANUFACTURING COMPANY, Milwaukee 7, Wisconsin

Air Units • Ammonia & Freon Compressors • Booster Compressors • Baudelot Coolers • Water & Brine Coolers • Blast Freezers • Evaporative & Shell & Tube Condensers • Pipe Coils • Valves & Fittings • Pakice & Polarflake Ice Machines

5833 on Reader Service Slip

Only one operator is required to put bags through paper shredder

Recover product from "empty", rejected paper bags

Refiner nets $10 for every 600 lbs by shredding rejected bags and screening out sugar

Problem: A large number of paper bags for shipping sugar are damaged during or after packing. In addition to loss of bags, which are discarded, a considerable amount of sugar clinging to them is also lost.

Solution: By shredding bags with a paper shredder, then passing over a shaker screen, sugar clinging to shreds is recovered, and bags themselves can be used or sold as packing material.

Results: In test runs at one sugar refinery, 56 ten-pound bags and 53 five-pound bags, cleaned and emptied according to standard procedures, were processed. Bags were cut in a paper shredder, and sugar was separated by shaker screen. Sugar recovered weighed 25.1 pounds, and weight of shredded paper was 7.5 pounds. The 25.1 pounds of sugar recovered amounted to 3% of original content of bags — 825 pounds.

Rate of salvaged sugar to total weight of paper bags and residue of sugar, before shredding, was approximately 75%. Therefore, if 600 pounds of rejected bags are cut per hour, 450 pounds of sugar will be salvaged per hour. Assuming a value of three cents/lb for sugar at refinery, this is a savings of $13.50/hr. Allowing $3.50/hr for the one operator required, leaves net savings of $10/hr.

Paper shredders are manufactured by Taylor, Stiles & Co., Riegelsville, N. J.

For more information circle 5831 on Reader Service Slip.

Food Conference

(Continued from page 35)

- Eating Habits of the American People
- Food for the Ages
  - — Childhood
  - — Teen Age
  - — Adults
- Food Comes First

The National Food Conference Planning Committee is headed by Charles B. Shuman, General Chairman, and President of the American Farm Bureau Federation; and Homer R. Davison, Chairman, and President of the American Meat Institute. On the Planning Committee are representatives of these 20 farm and food commodity groups represented on the Domestic Market Expansion Committee:

American Bakers Assn.
American Dairy Association
American Farm Bureau Federation
American Meat Institute
Cereal Institute, Inc.
Grocery Manufacturers of America, Inc.
Institute of American Poultry Industries
Millers' National Federation
Nat'l Assn. of Food Chains
National Association of Retail Grocers
National Council of Farmer Cooperatives
National Dairy Council
The National Grange
National Live Stock and Meat Board
National Livestock Producers' Association
National Restaurant Assn.
Poultry & Egg National Board
Supermarket Institute, Inc.
United Fresh Fruit & Vegetable Association
Wheat Flour Institute

OUTLOOK FOR 1958

January FOOD PROCESSING will feature a food forecast symposium — a roundup of opinions from industry leaders on the 1958 food industry outlook. Symposium topics will include new product development, technological needs, etc.

Can specialized business publication advertising actually sell?

Fred Snyder, Cleveland District
Worthington Corporation

sells to industry

By reputation, salesmen are reluctant to credit anything but their own selling efforts for getting names on the dotted line.

Actually, it's quite a different story. The most successful salesmen will tell you two important things about selling. 1. That the selling process is largely a matter of communicating ideas. 2. And that specialized business publication advertising can help importantly to register information with prospects.

Of course each salesman will express this in his own way . . . but they all agree that selling would be far more difficult without the advertising that appears in the industrial, trade and professional publications that serve the specialized markets to which they sell.

Here, for instance, is what a salesman has to say about this kind of advertising:

Says Mr. Snyder:

"We have, of course, sales leads from our business paper advertising that are forwarded to us on a monthly basis. But also the trade advertising has its impact on many who do not at the time request specific information. Worthington is far better known today than it was five years ago, due in no small measure to the aggressiveness of its advertising and sales promotion department.

"Their work makes my job easier. First of all, we have an entree in companies where some Worthington products were not previously as well-known as our original line. We're getting a lot better sales coverage on all products. The Corporation manufactures so many products today that even regular customers may be unfamiliar with some of these products. Through trade advertising and sales promotion we have been able to sell the whole Worthington line.

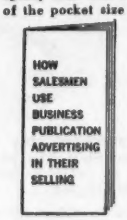
"Getting back to sales leads—they are particularly helpful to our dealers. In Cleveland, W. M. Patterson Supply will undoubtedly receive inquiries from Worthington's advertising. Scott-Tarbell, Inc., Cleveland Oak Belting, or other dealers handling special product lines will pick up leads from our advertising to help them get business.

"I think we've grown eightfold since the war. This year we hit two hundred million. It used to be that twenty-five million was a good year. The advertising and sales promotion department has aggressively been attacking their part of the problem within the last five years. Prior to that the name Worthington was not nearly so well-known and we put much less emphasis on advertising."

Ask your own salesmen what your company's business publication advertising does for them. If their answers are generally favorable you can be sure that your business publication advertising is really helping them sell. If too many answers are negative it could well pay you to review your advertising objectives—and to make sure the publications that carry your advertising are read by the men who must be sold.

How salesmen use their companies' advertising to get more business

Here's a useful and effective package of ideas for the sales manager, advertising manager or agency man who would like to get more horsepower out of his advertising. Send for a free copy of the pocket size booklet entitled, "How Salesmen Use Advertising in Their Selling," which reports the successful methods employed by eleven salesmen who tell how they get more value out of their companies' advertising.



You'll find represented many interesting variations in how they do this. Some are very ingenious; all are effective. You can be sure that more of your salesmen will use your advertising after they read how others get business through these simple methods.

The coupon is for your convenience in sending for your free copy. Then, if you decide you want to provide your salesmen with additional copies, they are available from NBP Headquarters in Washington, at twenty-five cents each. Or, if you choose you can reprint the material yourself and distribute it as widely as you please. But first, send for your free copy.

NATIONAL BUSINESS PUBLICATIONS, INC.
Department 2E
1413 K Street, N. W.
Washington 5, D. C. STerling 3-7533

Please send me a free copy of the NBP booklet "How Salesmen Use Advertising in Their Selling."

Name _____

Title _____

Company _____

Street Address _____

City _____ Zone _____ State _____

National Business Publications, Inc.

NBP

. . . each of which serves a specialized market in a specific industry, trade or profession.

For the BEST in NEW CONCRETE FLOORS,
Architects, Contractors and Cement Finishers
***Prefer* HYDROMENT**

Hydroment's superiority over other concrete floor toppings is a well established fact.

Here's a Surface with IMPROVED Hardness, Density Wearability, Corrosive, Resistance, and Lasting Appearance.

HYDROMENT IS BEST BECAUSE:

1. Proper balance of quartz and iron aggregate results in an unexcelled wearing course with no rusting or dusting.
2. Optimum grading of quartz and iron aggregate imparts surface density unobtainable in any other concrete hardener.
3. No periodic maintenance problem with Hydroment. It resists rugged wear for unusually long periods.

Write for Complete Details and NEW HYDROMENT BULLETINS.

4808 LEXINGTON AVE. CLEVELAND 3, OHIO
THE UPCO COMPANY
OVERS IN INDUSTRIAL RESEARCH SINCE 1867

5834 on Reader Service Slip

Does your present timekeeping system provide complete evidence that you comply with the Wage Hour law? Does it prevent time losses from tardiness and excessive time outs? A Lathem Time Recorder solves both problems... inexpensively... quickly. In fact, fast enough to pay for itself in a few months. Send this coupon for complete details, brochures and prices.

LATHEM TIME RECORDER COMPANY
86 THIRD STREET, N.W.
ATLANTA, GEORGIA

LATHEM TIME RECORDER CO.
86 Third St., N.W., Atlanta, Ga.
Gentlemen: I'm interested in accurate records. At no obligation to me, send me information on Lathem Time Recorder prices and a catalog.
Name_____
Address_____
City_____ State_____

5835 on Reader Service Slip

Punch cards replace route sales tags

Unique system means sharper accuracy, fewer hassles, better customer relations

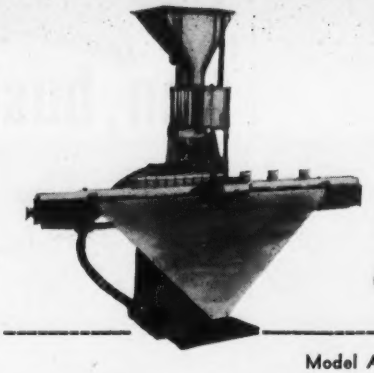
Fewer mistakes, greater accuracy, faster invoicing, and less lost time spent in correcting errors have resulted from an order-taking method originated at Mother's Cake & Cookie Co., Oakland, Calif. Formerly, route salesmen wrote sales tags on a conventional order book form.

With thousands of invoices flowing into a single office from 125 or more salesmen, it was humanly impossible to avoid mistakes: A hurried order taker forgot to put an address on the invoice, or neglected to put down customer's name, or perhaps it was scribbled on the tag, but was illegible. Sometimes a route number or other information vital to quick processing of the tag had been neglected.

Machine card system

Now, each salesman receives at start of week a packet of punched cards. These cards have customer's name, addresses, and other coded in-

Advertising Manager, Tom Wilson, leafs through a packet of punch card order blanks — representing a week's supply for one salesman



accurately meters ONE every second!

Model A-1 Pak-King

Consider such high-speed versatility for your plant. Model A-1 60-per-minute PAK King Automatic meters spices, soluble coffee, grated cheese, milk powder, cocoa or pudding mixes, drugs or chemicals — in virtually any type container.

Write for Catalog 55 on the Model A-1 and more than a dozen other machines for gross or net weighing, auguring, sealing, volumetric filling.

WEIGH RIGHT Packaging Machinery

WEIGH RIGHT AUTOMATIC SCALE COMPANY
JOLIET • ILLINOIS • U.S.A.

5836 on Reader Service Slip

Big packages stay sealed with rubber-impregnated, rope paper backed Shuford's SHURTAPE RP-48. It's quick to stick and stay even at sub-zero temperatures on waxed or coated paper, board or plastic bag!

Comes in colors to blend with your wrappers. Here's a pressure-sensitive tape that can take it! Use Shuford's SHURTAPE RP-48 for meat and produce packaging and for frozen foods. It's strong, seals tight . . . is easy and economical to use!

Order TODAY from your dealer, or write

Clothes Lines • Twines
Pressure-sensitive Paper Tapes
Sash Cords • Weather Stripping
Cotton & Rayon Yarns • Extruded Plastics

Shuford SINCE 1880 Mills, INC
HICKORY, N. C.

2755 **World's Largest Manufacturer of Cotton Cordage**

5837 on Reader Service Slip

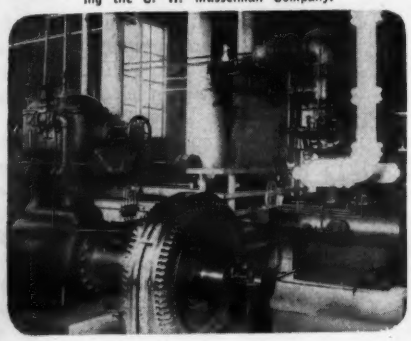
"We find FRICK Refrigeration Indispensable"

The golden apple of mythology is the symbol of this firm's celebration.

Says J. A. Hauser, president of the C. H. Musselman Co., Biglerville, Penna. Now celebrating its Golden Anniversary, the firm is one of the world's largest processors of apples, cherries, peaches, berries and tomatoes.

Beginning in 1934, the Musselman Co. has installed Frick refrigerating systems in each of its four big plants. The original Frick compressors are still running efficiently. A total of ten Frick machines are used today for process work, quick freezing and cold storage.

Two of the ten Frick refrigerating machines serving the C. H. Musselman Company.



If you want up-to-the minute cooling equipment, engineered to your special needs—whether for air conditioning, ice making, quick freezing or other refrigerating work—get in touch at once with

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA., U. S. A.

5838 on Reader Service Slip

formation on each, and are placed in the order of call on his route. He writes only the day's order on card at each call, giving customer a duplicate. Each card is faced with a special carbon which has proved successful with the machine-punched cards.

At end of day, each salesman totals his sales, sends punch-card invoices to central billing office. Totals are transferred to key punch data, and each customer's bill is then prepared mechanically. Billing errors are now very infrequent, customers are happy, and salesmen like the system. This system is being used in the Los Angeles office of Mother's Cake and Cookie Co., as well as at Oakland.

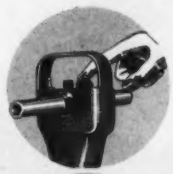
IBM punched card invoice system, with special carbon for duplicates, is development of International Business Machines, 590 Madison Ave., New York, N. Y.

For more information circle 5839 on Reader Service Slip.

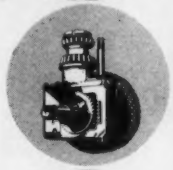
4 Big Reasons

why you should buy a

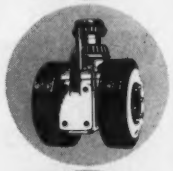
HydroLectric LIFT TRUCK



CONTROL COMPLETE at your finger tips

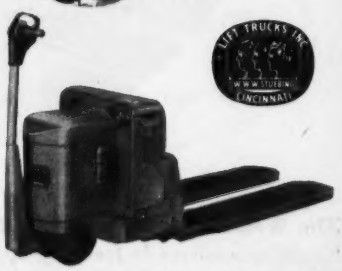


SEALED ALLOY GEAR DRIVE for long service life



TWIN DRIVE WHEELS with differential for ease of steering and good stability

HEAVY DUTY MOTOR completely enclosed—highly efficient easy accessibility



Compare the Hydrolectric features with any other "Driver Lead" Lift Truck. The Hydrolectric quality of construction merits your inquiry. Two driving wheels instead of one — 50% easier steering — ease of maintenance.

Write for Catalogue #35 today showing various models and their features. NOTE: The Dyna-Dual Power Unit is interchangeable on all models.

LIFT TRUCKS INCORPORATED

2423-31 SPRING GROVE AVE. CINCINNATI 14, OHIO

5840 on Reader Service Slip

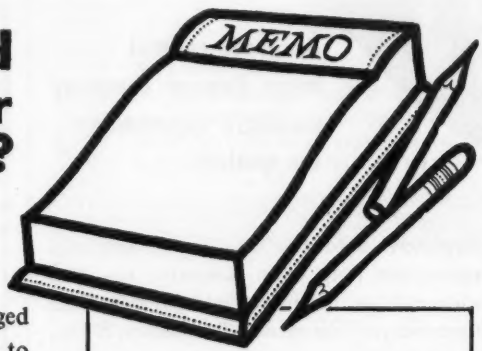
Changed Your Address?

BE SURE TO LET US KNOW!

If you have recently changed your address you'll want to make sure that your copy of Food Processing continues to reach you . . . just use this convenient form.

Please answer all the questions as completely as possible.

Mail request to
Reader Service Dept.
Food Processing
111 East Delaware Place
Chicago 11, Illinois



Former Company Affiliation .....

Former Address .....

Your Name ..... Present Title .....

Present Company .....

Main Product .....

Rating of Company .....

Street Address .....

City ..... Zone No. ..... State .....

New way to export surplus milk

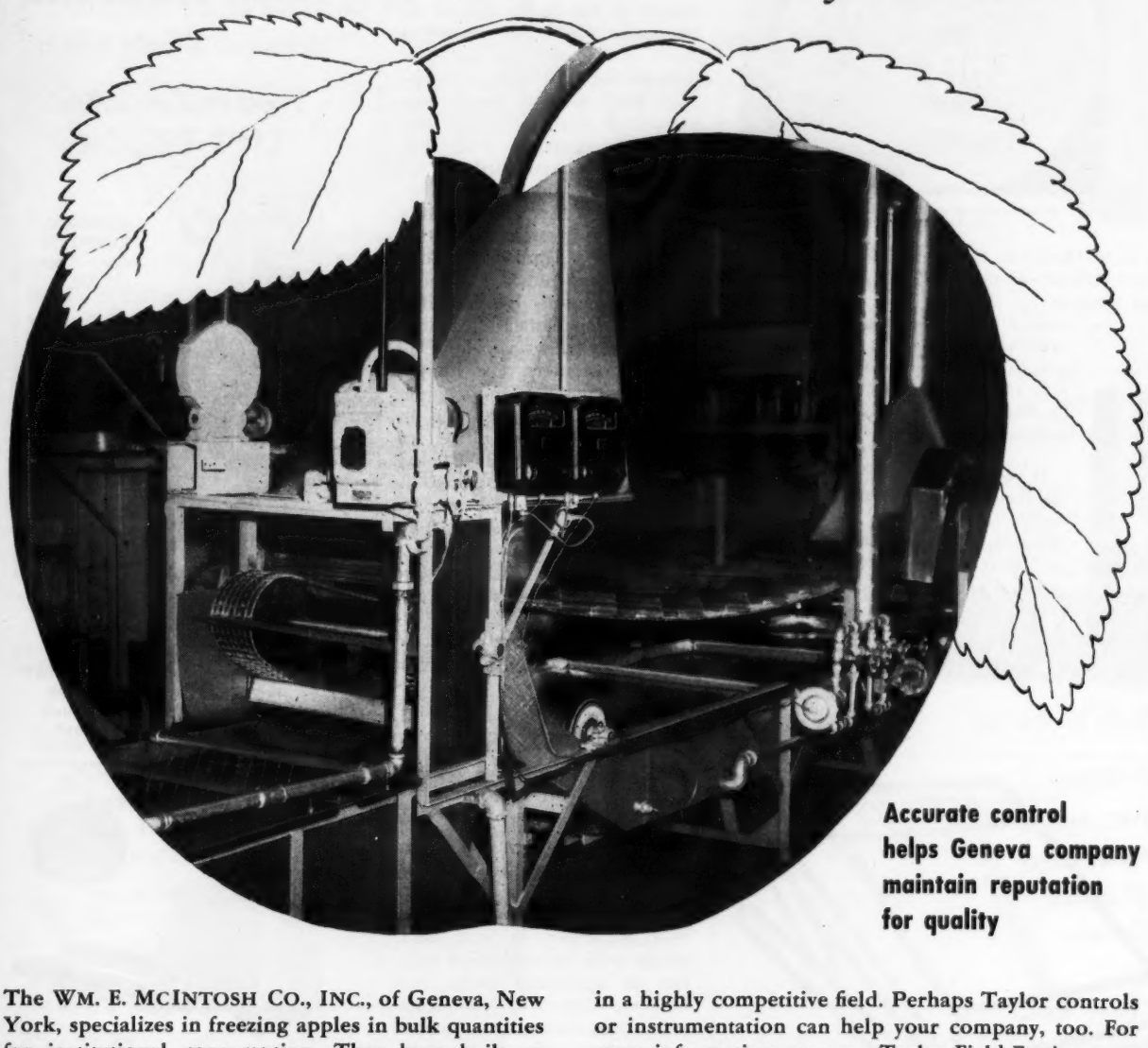
Using dried-milk solids, coconut and cottonseed oils, fortifying vitamins, and water, a new drink has been produced that is lower in cost than whole milk or condensed milk, has an agreeable flavor, and is even higher in nutritional value than conventional canned evaporated milk.

In comparative dietary tests of canned evaporated milk versus the new drink, it was found that animals living on the milk-solid vegetable oil composite showed faster growth and development. Research plans are now underway to determine if it is as nourishing to humans as to animals. If so, dried milk could be supplied cheaply to underdeveloped areas where it can be reconstituted into liquid form.

Research on the new milk drink has been carried on by Foremost Research Foundation of Foremost Dairies, Inc., 425 Battery St., San Francisco 11, Calif.

"Better blanching means bigger profits"

...says McIntosh



Accurate control helps Geneva company maintain reputation for quality

The WM. E. MCINTOSH CO., INC., of Geneva, New York, specializes in freezing apples in bulk quantities for institutional consumption. They have built an enviable reputation for turning out a top quality product . . . and Taylor temperature controllers have played a large part in helping them achieve this quality.

On the apple slice blancher shown above (one of three . . . all under Taylor Control), the two Taylor FULSCOPE* Temperature Controllers operate Taylor HI-FLOW* valves which regulate steam input. Maintaining exact temperature is extremely important in the blanching operation to prevent discoloration and to maintain perfect texture. The McIntosh Company are well pleased with the performance of this Taylor designed system.

This is another case where scrupulous control of product quality has helped make a name for a company in a highly competitive field. Perhaps Taylor controls or instrumentation can help your company, too. For more information, see your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

*Trade-Mark

Taylor Instruments
MEAN
ACCURACY FIRST
VISION · INGENUITY · DEPENDABILITY

5841 on Reader Service Slip

Industrial TV

(*Continued from page* 28)

This "magic" was accomplished by first screening the hot tallow through an 18" vibrating separator (Fig. 6), which removes plus-forty mesh material. Tallow flow then goes through a continuously de-sludging centrifuge for polishing (Fig. 6) thence to storage.

Wash water goes into a pressure-flotation separator (Fig. 7). There, the water, containing fats and proteinacous waste material, is saturated with air at an elevated pressure, then released at atmospheric pressure in the flotation compartment. The air comes out of solution as fine bubbles, which rise to the surface. The suspended matter is attached to the bubbles forming a mat of "float" at the surface. The fatty wastes in the float are automatically skimmed from the surface and recovered, and the water is ready for reuse.

The number of tallow wash tanks was doubled, and two new storage tanks for tallow, 21' dia by 36' high, were added.

Industrial Television Directory

In compiling a directory of firms offering industrial television equipment, FOOD PROCESSING editors wrote to 20 manufacturers of television and electronics equipment. The following replied that they had such equipment available:

Blonder-Tongue Laboratories, Inc., 9-25 Alling St., Newark 2, N. J.

Diamond Power Specialty Corp., Lancaster, Ohio

DuBois Engineering & Mfg. Corp., 2600 Block, 169th St., Hammond, Ind.

Allen B. DuMont Laboratories, Inc., 750 Bloomfield Ave., Clifton, N. J.

General Precision Laboratory, Subsidiary of General Precision Equipment Corp., 63 Bedford Rd., Pleasantville, N. Y.

Graybar Electric Co., 420 Lexington Ave., New York 17, N. Y.

Hallamore Electronics, 8352 Brookhurst, Anaheim, Calif.

Kintel Laboratories, 5725 Kearney Villa Rd., San Diego 12, Calif.

Philco Corporation, Government and Industrial Div., 4700 Wissahickon Ave., Philadelphia 44, Pa.

Trends in Livestock

(*Continued from page 34*)

possible by tenderizers, prepackaging at the packing plant seems likely. Cattle would remain in the feed yard for shorter periods than at present, and more emphasis would be placed on animal growth than on fattening. Producers and feeders would be looking for fast-growing animals, with less thought to color, type or body conformation. No one in the industry can afford to ignore the possibility of such changes. We should explore the extent to which these developments are beneficial to the industry, and the extent to which they are feasible within the existing institutional regulatory framework; or whether or not this regulatory framework should be altered to permit desirable changes. For these kinds of changes, the dominant institutional forces that would have to be overcome very likely would arise from the labor unions.

All of these points merely indicate that this is a dynamic industry that is experiencing great changes. There are competent research people at work in each segment of the industry working hard on what they view as their own phase of the problems. Much of their energies tend to be dissipated in keeping abreast of other segments of the industry in a running battle for temporary bargaining advantage rather than remaining focused on the central problems of the industry. To a total stranger this must seem quite similar to a brood of chicks which are fighting so hard over who gets what part of the worm that they fail to see the hungry hawk as he approaches over the horizon.

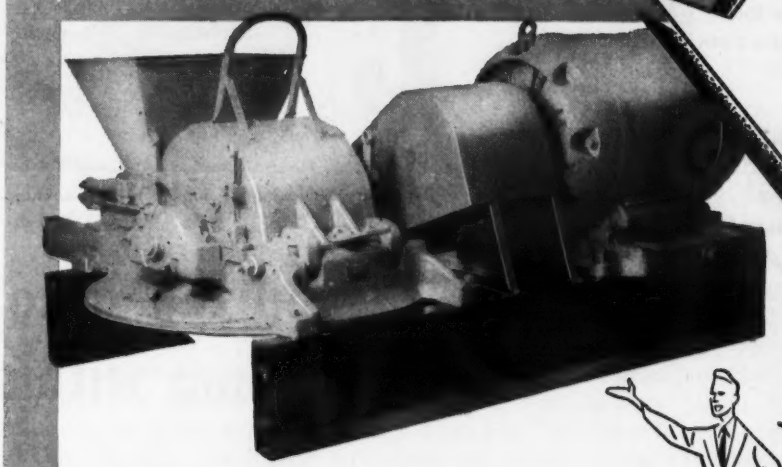
Whether these changes will be evolutionary or revolutionary, just where the integration will take place, and just who will comprise the industry of the future will depend, to a large extent, on whether we are geared for the future or for the past, and on how well the agribusiness of livestock and meat understands, attacks, and finds practical solution for the inescapable problems which these changes present. ◀

From TEST to TONNAGE...

"SCALE UP"

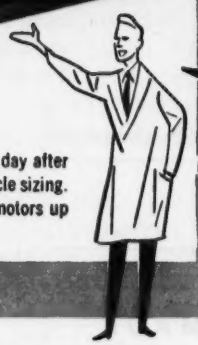
with

Mikro-Pulverizers



THE BANTAM PULVERIZER is a complete miniature grinding plant, perfect for pilot plant and experimental work. Easy and economical to operate, the BANTAM utilizes a ¾ or 1 hp motor, and has an average capacity of 75-100 lbs. per hour.

NO. 4 MIKRO-PULVERIZER
—a rugged, high-capacity mill, designed to produce specified results day after day, 24 hours a day . . . readily adjustable for speedy changes of particle sizing. MIKRO-PULVERIZERS are available in four models (Nos. 1-4) with motors up to 75 hp, and capacities to 25,000 lbs. per hour.



"ENGINEERED FOR DEPENDABILITY... ECONOMY... HIGH PRODUCTION!"

Whatever your grinding requirements, there's a MIKRO-D pulverizing unit tailor-made for the job. You'll find an economical, miniature plant, ideal for small production work . . . a choice of stepped-up intermediate sizes to serve growing production demands . . . or an ultra-high capacity mill designed to produce more than ten tons per hour! In addition, you'll discover that the quality and fineness of grind specified for your product can be exactly duplicated, in any quantity, on every pulverizer in the MIKRO-D line!

For a laboratory demonstration of the results you can expect from these MIKRO-D units, send us a product sample and your specifications. We believe you will be convinced that low-cost, dependable MIKRO-D equipment—now serving in chemical processing plants throughout the world—can put more profit in your production. Of course you are invited to write for full information on the complete MIKRO-D line.

Mikro-D

PULVERIZING MACHINERY DIVISION

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GENUINE MIKRO-D REPLACEMENT PARTS AVAILABLE FROM LARGE STOCK WITHIN 48 HOURS.

MANUFACTURERS OF PULVERIZING, AIR CONVEYING AND DUST COLLECTION EQUIPMENT

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All these food items are enhanced with Clinton products from corn, which include Corn Starch, Corn Syrup and Dextrose, Refined Corn Oil and Lactic Acid. With over 50 years in the corn processing industry, Clinton has both the products and the technical know-how to add more sales appeal to your food items, put more profits in your sales. Call in a Clinton man today!

50th ANNIVERSARY 1907-1957

Quality products

FROM THE WORLD'S CORN CENTER

CLINTON

CLINTON CORN PROCESSING COMPANY
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5843 on Reader Service Slip

Glossy icing which is intact after unwrapping is now possible

Stabilized icing permits wrapping within 45 sec

- **No sticking to overwrap**
- **Remains stable for 8 days**

Icing with new powdered stabilizer sets quickly, does not stick to wrapper, and has a long shelf life. Test results show icing does not stick to cellophane even though sweet rolls are wrapped within 45 seconds after icing.

Iced rolls for shelf-life tests were both machine and hand wrapped in cellophane and stored under two climatic conditions. Half of the wrapped rolls were in a controlled atmosphere cabinet (100°F, 98% humidity), balance were kept at room temperature in the stabilizer manufacturer's baking kitchen. Samples were examined daily. Results showed icing on rolls kept at room temperature remained stable for eight days; those kept in cabinet remained stable for five days.

Stabilizer is free-flowing and easily mixed with conventional icing formulas; imparts extreme whiteness and high gloss to sweet roll icing. Stabilizer gives greater yield and coverage, since it decreases specific gravity of icing — in baking tests it has increased coverage as much as 20%. Working tolerances of stabilized icings are less critical and uniform application takes place under most plant and weather conditions.

Icy-White stabilizer is development of Basic Foods Sales Corp., Bancker St, Englewood, N. J.

For more information simply circle 5844 on Reader Service Slip.

Icing imparts extreme whiteness to breakfast rolls

Develop whole cranberry with spice flavor

Spiced cranberry is the newest variation of Cransweets, a berry processed to retain natural color and form of the fresh berry. Uses are in ice cream and candies, to top frostings of bakery products, and to pack as a hors d'oeuvre.

Spiced Cransweet cranberry is licensed by Wisconsin Alumni Research Foundation to Cranberry Products Inc., Eagle River, Wis.

For more information circle 5845 on Reader Service Slip.

Imitation flavor has real cherry taste

An imitation cherry flavor has been developed which has the same taste appeal as real cherries. Product is marketed as a concentrate.

Manufacturer offers suggestions as to proper quantities to use in hard and soft center candies, gelatin dessert and summer drink powders, bakers' jelly and other bakery products, and extracts for beverage and ice cream processors.

Imitation Cherry Concentrate F-2616 is product of Givaudan Flavors Inc., 330 West 42nd St., New York 36, New York.

For more information circle 5846 on Reader Service Slip.

Instant pie thickener has new name

Stabilizer 37 instant thickener for pie fillings has been named Instant Clearjel. This ingredient requires no cooking, prolonged stirring, or cooling. Just add liquid to dry ingredients, agitate, then mix in fruit — and filling is ready to add to pie crust for freezing or baking.

Samples of Instant Clearjel available from National Starch Products, Inc., 270 Madison Ave., New York 16, N.Y.

For more information circle 5847 on Reader Service Slip.

Accent Flavor-Gram

CAPSULED NEWS FROM THE WORLD OF FLAVOR

✔ DOCTORS TOLD TO SAVOR PATIENTS! In an article from "The American Academy of General Practice", March, 1956—doctors were told to prescribe flavor to diets; and, for low-salt diets, physicians could wisely recommend monosodium glutamate. It makes food tastier by enhancing natural flavors, yet it contains less sodium than salt.

✔ FLAVOR MAY CLINCH THE SALE BY '62. At a recent symposium on flavor research in Chicago, Dr. Raymond Stevens, president, Arthur D. Little, Inc., predicted that by 1962 flavor differences will replace packaging as the food manufacturer's most important competitive tool in selling new products. Currently, cheese products and beverages lead this trend.

✔ WHAT'S THE "EXTRA" PEOPLE WILL PAY EXTRA FOR? Blue Lake Packers of Salem, Oregon, will tell you that if you give consumers that "something extra in flavor", they'll buy your products even at a higher price than others. They started using Ac'cent brand monosodium glutamate in 1953. It has proven to be such a sales extra that today their entire line of "Jack and the Beanstalk" foods contain Ac'cent.

✔ A WHALE OF A DIFFERENCE IN FLAVOR! To sell more fish—"glutamate it!" says Gerald A. Fitzgerald, V.P. and Dir. of Donald K. Tressler and Associates. In a review of flavor research done in recent years, Mr. Fitzgerald cites a Chicago study which indicates that monosodium glutamate added to fish products largely restores their fresh flavor. He also cites a New Jersey panel test which proved that monosodium glutamate not only makes a "whale of a difference" in flavor, but in public favor. With the presence of monosodium glutamate, the consumer acceptance of frozen fish sticks, for example, actually doubled.

✔ FOOD FLAVOR—BIGGEST THING WITH CONSUMERS. More than 8,000 processed and prepared food items today contain monosodium glutamate. And here's why processors are adding this ingredient: Flavor counts with consumers, so they buy the best-tasting product in its price range. Ac'cent, pure monosodium glutamate, brings out food's high level of flavor freshness ... and holds this higher level of food's natural flavor throughout processing and shelf life.

✔ FLAVOR IS THE MAIN BUSINESS OF AC'CENT•INTERNATIONAL. New developments and happenings in the Food Processing Industry are just one of the many services we offer you. As the American pioneer of monosodium glutamate, let our experience, our qualified personnel, research and technical facilities help you solve your flavor problems. If you would like to know more about the news items reported here, just drop a line on your letterhead to Technical Service Dept., Ac'cent•International, 20 N. Wacker Drive, Chicago 6, Ill.

Accent® BRAND PURE MONOSODIUM GLUTAMATE

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5848 on Reader Service Slip

excellent for baked foods and ice cream

If you're cost-conscious and quality minded, here's a great idea! Bakers and ice cream makers know that the use of CONSOLIDATED DRY SWEET WHEY reduces cost, improves quality and aids processing.

prepared mixes . . . fish sticks . . . pot pies

CONSOLIDATED DRY SWEET WHEY is just as valuable in producing breaders, prepared mixes, soups, meat products, confections and numerous other foods. Its unique combination of albumin protein and milk sugar favors browning and color development. It promotes lasting tenderness, texture and flavor.

significant savings

Priced significantly under other dairy ingredients, CONSOLIDATED DRY SWEET WHEY is non-hygroscopic . . . quality controlled to exceed U.S. Extra Grade Standards.

So capitalize on this idea. Let our technical department cooperate with yours in research that may lead to surprising cost reduction and product improvement for you.

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Manufacturers of Extra Grade Whey and Buttermilk Products

5849 on Reader Service Slip

food ingredients

Wheat gluten seasoning has meat-like flavor

Low-cost product has high MSG content

Low-cost seasoning that imparts a meaty aroma and has a salted meat-like flavor is offered in a hydrolyzed vegetable protein made from wheat gluten. It has a light tan color. It is recommended for products which are not heat processed and where a meat flavor is a desired addition.

Product offers advantage of having a high monosodium glutamate content, yet costing no more than hydrolyzed vegetable protein. Composition is: MSG 6%; HVP flavor solids 24%; total chlorides 72%; total solids 97%.

Typical application is with ground beef, frozen hamburger, meat balls. In this instance, recommended proportion is 12 oz seasoning to 100 lb meat.

Huron Triple H Seasoning is available in 100-lb drums from Huron Milling Div., Hercules Powder Co., Wilmington 99, Delaware.

For more information circle 5850 on Reader Service Slip.

Explains uses, types of soy flours

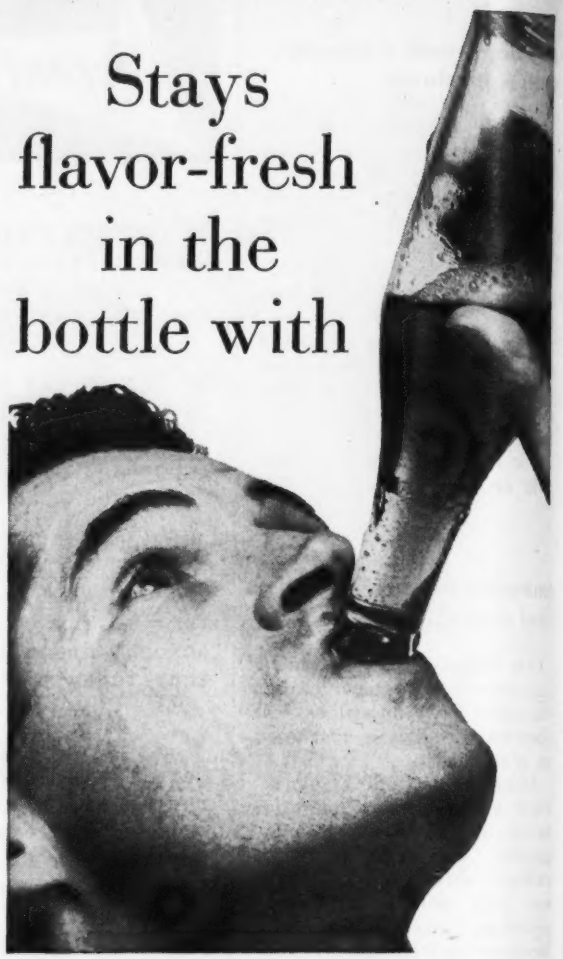
Soy flour is one of nature's richest sources of body-building proteins, according to 12-page booklet. This ingredient being produced in several forms for use in more food products. An example is a low fat flour (a defatted soy which has been refatted with 6% soybean oil) for use as a sausage binder.

Other flours have been "tailored" to use in macaroni, chocolate beverages, pancake mixes, sauces, whip topping, dry soup mixes, spices, and confectionery products.

"Soy Flour: Compliment to Modern Eating", (pocket-size) is available from Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minnesota.

For more information circle 5851 on Reader Service Slip.

Stays flavor-fresh in the bottle with



GIVAUDAN
SOFT DRINK
FLAVORS

Givaudan-flavored soft drinks have a reputation for flavor retention and long shelf-life. When the cap comes off, the fresh, savory taste, the original strength and color are there to be enjoyed. That's because Givaudan flavors are scientifically formulated and quality-controlled to assure maximum stability and uniformity for prolonged periods after bottling.

Try Givaudan True Fruit Bases and Flavor Concentrates in your formulations. Generous test samples on request.

Givaudan Flavors Inc.

330 West 42nd Street, New York 36, N. Y.

5852 on Reader Service Slip

Refiner begins marketing safflower oil

Another source for safflower oil has been announced. This oil is reported to have the highest content of unsaturated fatty acids of any commercially available vegetable oil—averaging 70% linoleic acid.

It may be used as a salad or mayonnaise oil, in baking, in dietary products, and in other foods where increased concentrations of unsaturated fatty acids are desirable for nutritional or medicinal reasons.

The oil is a clear, pale yellow, bland liquid; refined to a pharmaceutical grade; and shipped in quantities ranging from gallon containers to tank car lots.

Safflower oil is available from A. E. Staley Mfg. Co., Decatur, Illinois.

For more information circle 5853 on Reader Service Slip.

Retarding rancidity of fats in candy

Shelf-life of candy can be increased by adding antioxidants or glycerol, provided they are selected with regard to fat used, according to USDA research report. Eleven antioxidants gave excellent protection against oxidative rancidity; glycerol retarded formation of free fatty acids, but had no effect on oxidative rancidity, while antioxidants useful in preventing the latter type of spoilage did not prevent formation of free fatty acids.

Animal fat shortenings, containing BHA antioxidant, were as stable to oxidative rancidity as vegetable fats, but had a tendency under some conditions to form free fatty acids with an objectionable odor.

These research results by Helen M. Robinson are available in the form of a reprint, "Stabilization of Fats in Candy: II—The Importance of Free Fatty Acids," from USDA, Southern Utilization Research and Development Div., 1100 Robert E. Lee Blvd., New Orleans 19, La.

Bromelin, a highly potent protein-digesting enzyme derived from the pineapple plant, is excellent for use in meat tenderizers, baked goods, chillproofing beer and in many other food applications. New *bromelin* is an excellent companion product to the many TAKAMINE enzyme products derived from bacterial and animal sources.

DIASTASES — For liquefaction and hydrolysis of starch to produce soluble dextrins and sugars. Also removes starch, eliminating filtration problems and turbidity.

PECTIC ENZYMES — For the hydrolysis of pectins in fruit and fruit juices in order to speed processing and to make fruit juices sparkling clear for consumer appeal.

PROTEINASES — For the modification and hydrolysis of proteins in food manufacturing and pharmaceutical operations.

GLUCOSE-OXIDASE — To prevent browning due to glucose or oxygen, and to increase shelf-life of beverage products.

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make it taste *better,*
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With every good wish
for a Merry Christmas
and a very Happy New Year

Our 159th Year of Service

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Flavor Bases
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4-yr taste panel results on sugar-flavor relationship show consumers

Prefer sweeter packs

People like canned fruit with a higher sugar content than is current market practice! This is the most recent finding of a long-term flavor research project at the University of California. Acting upon this finding, several West Coast processors are putting up experimental packs of cling peaches with 50 percent more sugar than in their regular packs.

Mrs. Rose Marie Pangborn, University of California food technologist, working under Dr. Emil Mrak's direction, has been studying relationship between sugar and flavor in many foods. She reported that consumers on taste panels cited "superior flavor" as the reason for preferring the sweeter packs. But they did not mention "sweetness" as such. Here are some results from consumer surveys and controlled lab tests:

A mass consumer testing of canned cling peaches was conducted at the California State Fair over a four-year period. About 30,000 people were asked to give their opinions on peaches packed at various sugar and acid levels. The visitors consistently preferred their peaches sweeter than was currently believed typical of the public's preference.

Tastes sweeter with higher acid level

Under lab conditions, a trained taste panel found that optimum amounts of sugar enhanced natural flavor in peach, pear, and apricot nectars, and that the relationship between sweetness and flavor was influenced by acidity. By adding small amounts of citric acid to these nectars, then adding more sugar, a flavor of superior quality was achieved.

Canned apricot samples, packed with 30 to 70 percent

Taste preferences for canned fruit with varying degrees of sweetness have been gathered for four years at the California State Fair. Here Food Technologist Rose Marie Pangborn asks Gov. Goodwin Knight for his verdict

sugar syrup, were used in a 200-family survey.

Reports of these tasters showed that low-acid apricots were most palatable with 40 percent sugar syrup. High-acid apricots had greatest flavor intensity at the 50 percent sugar syrup level. Similar results appeared in another survey of 400 families tasting canned Bartlett pears. Many remarked that all samples of canned fruit were superior to that available in local markets for reasons of flavor, texture, and color.

Males have sweet tooth

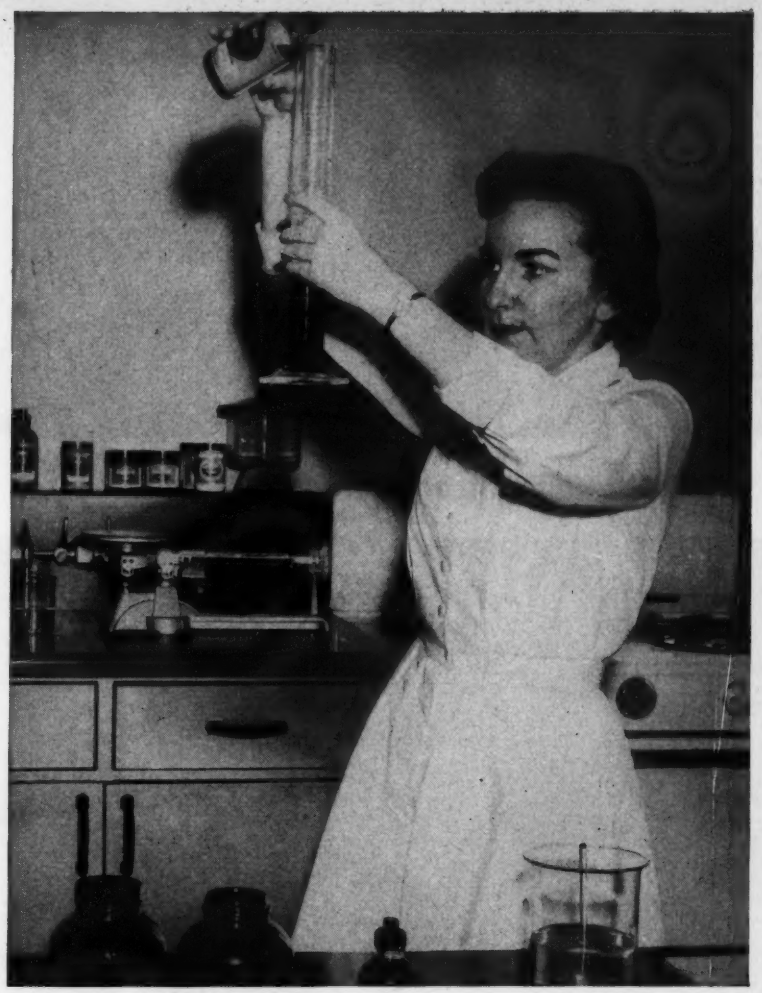
Further analysis of the surveys found that males preferred fruit sweeter than did females, and that children under 16 years and adults over 50 liked fruit sweeter than did other age groups.

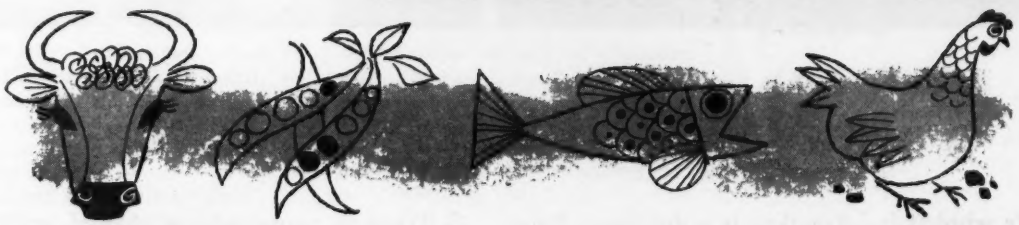
Other data revealed that people preferred fruits sweeter for use in desserts than in fruit salads.

They also liked sweeter fruits after the evening meal than after lunch. Overweight consumers appeared to like fruits better than did average or underweight consumers, but did not necessarily prefer them sweeter than did other groups. Regardless of body size, according to Mrs. Pangborn, acceptance could be related to sugar-acid ratio of the fruit.

These survey results were released through Sugar Information, 52 Wall St., New York 5, New York.

new ways to improve your product and profits





Animal, vegetable, fish or fowl—if your forte is food, Huron HVP (Hydrolyzed Vegetable Proteins) can help you enhance the quality and broaden the market for your products. This, of course, means extra sales and profits for you. In our modern, well-equipped Technical Service Laboratory, we will be happy to work with you to determine the proper use levels for your individual products.

The new booklet, *"Huron HVP," will give you a wealth of information on specific applications of HVP in all phases of food processing. For your free copy, write, wire or phone Huron Milling Division, Hercules Powder Company, Wilmington 99, Delaware.*

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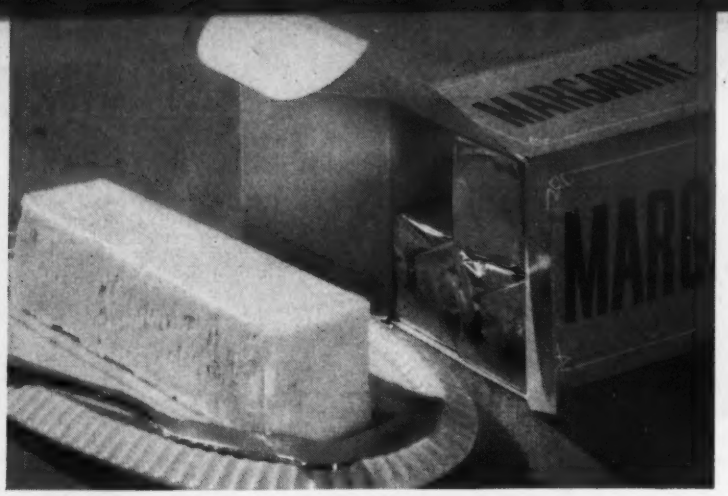

A more concentrated flavor and aroma for your food products with...

NEW TEKNIKAN

Here's what it is... Teknikan is a dry Sweet Dairy Whey at special fat levels, that has been processed for the food industry by exclusive manufacturing methods. It gives you that special dairy solids flavor which is one of the "most wanted" in many food products today. Your product, containing Teknikan, will retain its desirable flavor and aroma longer.

Here's what it does

1. Teknikan when used in margarine, produces a superior dairy spread flavor.

2. Teknikan gives chocolate that well-known rich product flavor.

3. Teknikan assures you of sharper, more delicious spaghetti and macaroni dinners.

4. Teknikan brings out the sharp, wonderful flavor of powdered cheeses.

5. Teknikan adds a more mouth-watering natural dairy flavor to cakes, rolls and biscuits.

Only the highest quality special Sweet Dairy Whey is used in the manufacture of new Teknikan. Try it today ...it's economical...get the flavor you desire by merely using varied concentrations.

For additional information and working samples (be sure to state product application); please write our Technical Service Department 719.

Valley Fresh Teknikan

WESTERN CONDENSING COMPANY, Appleton, Wisconsin • World's Largest Producer of Whey Products

MSG

Results of taste panel tests on adding monosodium glutamate as an ingredient in canned, frozen, cured, and fresh meats and poultry as well as sausage are combined in a 26-pg, pocket-size booklet.

"The Value of Glutamate in Processed Meat and Poultry" is issued by Glutamate Manufacturers' Technical Committee, 214 Front St., San Francisco 11, Calif.

For your copy simply circle 5857 on Reader Service Slip.

Big blow

Before 1900 it took five men 14 hours to make 216 bottles. Automatic machines now can make more than that in a minute.

For more information on product at left, circle 5858 see information request blank opposite last page.

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Super-Refined Alginates and Carrageenates

"The ingredients you use by the pinch to make better products by the pound"

Knowledge of the remarkable properties of certain colloids extracted from Marine Plants is rapidly becoming an essential item in the "Know-How" of an increasing number of food technologists.

Our extraction processes result in super-refined and rigidly controlled concentrates that are outstandingly effective and *economical* whether the end result desired be suspension, stabilization, gelation, or increased viscosity, to mention only the most current uses. They are *natural* food ingredients and their wholesomeness is undoubted.

The many uses for our products in the dairy products and baking industries are being swelled by a growing demand from other food processors, notably manufacturers of canned and packaged specialties.

The versatility of our materials has enabled our Technical Department to help in the creation of better, and in some instances, altogether new food products.

Write to us for complete information regarding our products, and if you have any specific problem, our Technical Department is at your service.

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5859 on Reader Service Slip

Natural black walnut, banana available as powdered flavors

Such unusual flavors as natural banana and black walnut are included in a new line of powdered flavors developed for use in cake mixes, puddings, and beverages marketed in powder or tablet form, and for other products where it is desirable to avoid liquids.

Shelf life tests show these powders hold their flavor six times longer than conventional liquid flavors. Primary reason is that a flavor's vapor pressure is much lower in dry form.

Micromatic-Captive flavors (imitation and natural) are produced by Syntomatic Corp., 114 East 32nd St., New York 16, N.Y.

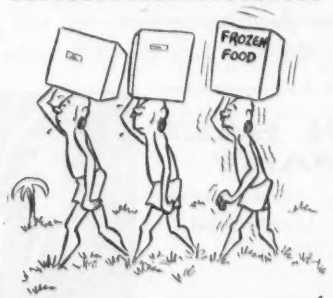
For more information circle 5860 on Reader Service Slip.

List characteristics of anti-caking agent

Series of ultra-fine particle size materials (sodium silico aluminates) used to resist caking in foods is described in 4-pg tech service bul. Depending on food being conditioned, the material can act as a parting agent, bulking agent, moisture barrier, or sponge. Bul includes comparative rating chart on several conditioners for salt.

"Zeolex, anti-caking agent", Bul IPD-8-5, is available from J. M. Huber Corp., 100 Park Ave., New York 17, N. Y.

For more information circle 5861 on Reader Service Slip.



use the antioxidant with greatest carry-through

Whatever your fat-containing product, Sústane BHA gives it greater, longer-lasting protection against rancidity through processing or consumer-use conditions.

Sústane-protected shortening gives cooked food products or prepared mixes the carry-through protection they need to maintain your high standards of quality. Sústane BHA is stable, both thermally and chemically, so that it will protect a fat against the development of rancidity after mixing with any food ingredients and even after baking or frying at elevated temperatures. This means greater shelf life for the many cooked food products containing animal and vegetable fats.

If you make crackers, nuts, potato chips, cereals . . . any fat-containing food product, you have the same assurance that your product is protected against oxidation from the time you process it until your consumers eat it . . . when you use

carries through:
cooking
baking
deep frying

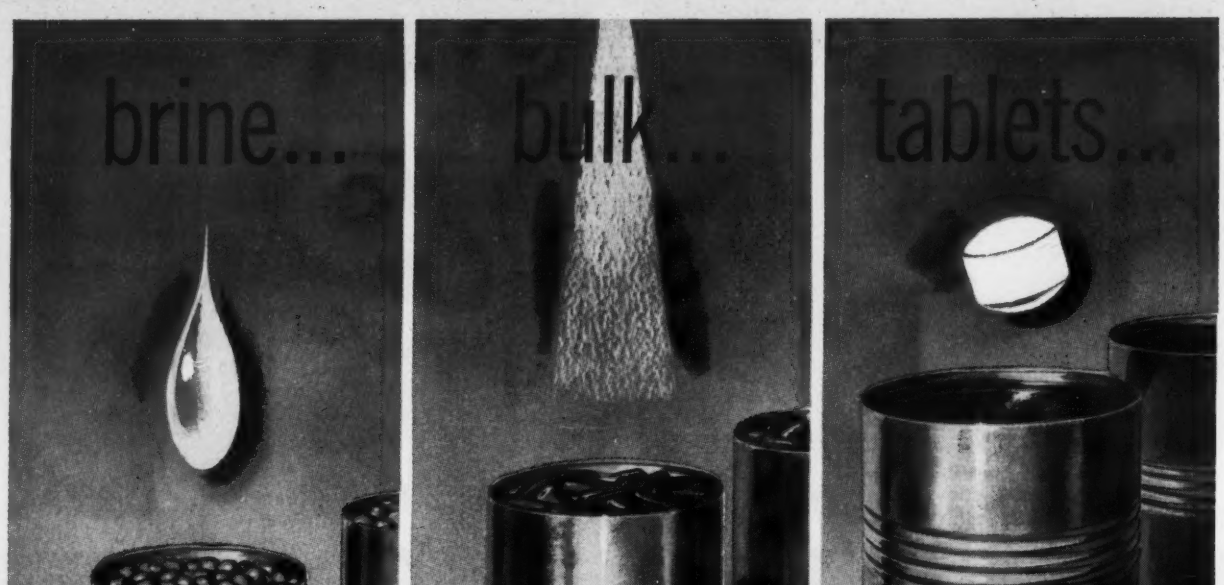
Sústane®

the antioxidant with greatest carry-through

Sústane antioxidants come in several convenient, economical forms for the ultimate in time, labor and money savings. Drop us a line or give us a call. We'll be pleased to give you our recommendations.

UOP
UNIVERSAL OIL PRODUCTS COMPANY
30 ALGONQUIN ROAD, DES PLAINES, ILLINOIS, U. S. A.

5862 on Reader Service Slip



Now! Three ways to add Morton '999' Salt

Morton now offers you a single grade of high purity salt for all forms of dispensing. Morton '999' Salt is ideal for bulk use and brine because it is a cube type salt that won't break up in shipment and will dissolve uniformly. '999' also has a practically constant weight per volume and is easily and accurately dispensed by machine.

Morton '999' also comes in 10-grain to 400-grain tablets. (Trade name: Scienco Salt Tablets.)

No matter in which form you use Morton '999', you protect flavor. For '999' is a low cost, high purity salt, free from bitter calcium and magnesium compounds that can distort food flavor. Morton '999' is always 99.9% clean, pure sodium chloride, exceptionally low in the objectionable trace metals, copper and iron.

For more information about Morton '999' Salt and for ways in which you can dispense it most effectively, write:

MORTON SALT COMPANY
INDUSTRIAL DIVISION
Dept. FPr-12, 120 So. La Salle Street,
Chicago 3, Illinois

5863 on Reader Service Slip

Oleoresin mace lasts longer, costs less than oil nutmeg

Oleoresin mace, equally as effective as but more economical than oil nutmeg, demonstrates greater lasting quality than oil when used in bakery foods.

It is a dark, reddish-brown homogeneous liquid manufactured from mace. Being solvent free, it contains from 50 to 60 cc of volatile oil per 100 grams, and has a spice-like nutmeg flavor.

Oleoresin mace was developed by Fritzsche Brothers, Inc., 76 Ninth Ave., New York 11, New York.

For more information circle 5864 on Reader Service Slip.

Tenderizes meat without developing off-tastes

Uses: Successful for past two years on portion control beef steaks. Now shown valuable to improve diced beef for frozen pot pies. Tests are continuing on tests with southern veal, rock lobster, and other sea foods.

Features: Meats dipped in liquid tenderizer maintain color, develop no off-tastes, tenderize uniformly without appearing or tasting mushy.

Description: Tenderizer produced as a liquid concentrate, includes salt, MSG, sugar, papain, and flavor. Manufacturer formulates tenderizer to meet individual processor's requirements.

FM-102 Liquid Tenderizer Dip is development of Freezer Laboratories, Inc., 3755 S. Racine Ave., Chicago 9, Ill.

For more information circle 5865 on Reader Service Slip.

Discusses carotene for coloring foods

Carotene as a means to color margarine, shortening, edible oils, dairy products, mellorine, dietary foods, baking products, and animal feeds is discussed in 7-pg mimeographed bulle-

tin, punched for placement in 3-post looseleaf binder. This ingredient is extracted from natural sources, and acceptable to FDA as a coloring agent and for vitamin A enrichment.

Bulletin includes history of carotene, clinical symptoms of dietary deficiencies, daily requirement of vitamin A, assay methods, and forms of carotene offered by supplier.

Bul 16, "GBI Carotene", is available from General Biochemicals, Inc., 10 Laboratory Park, Chagrin Falls, Ohio.

For more information circle 5866 on Reader Service Slip.

Publishes fourth edition of manual on using ascorbic acid to freeze fruit

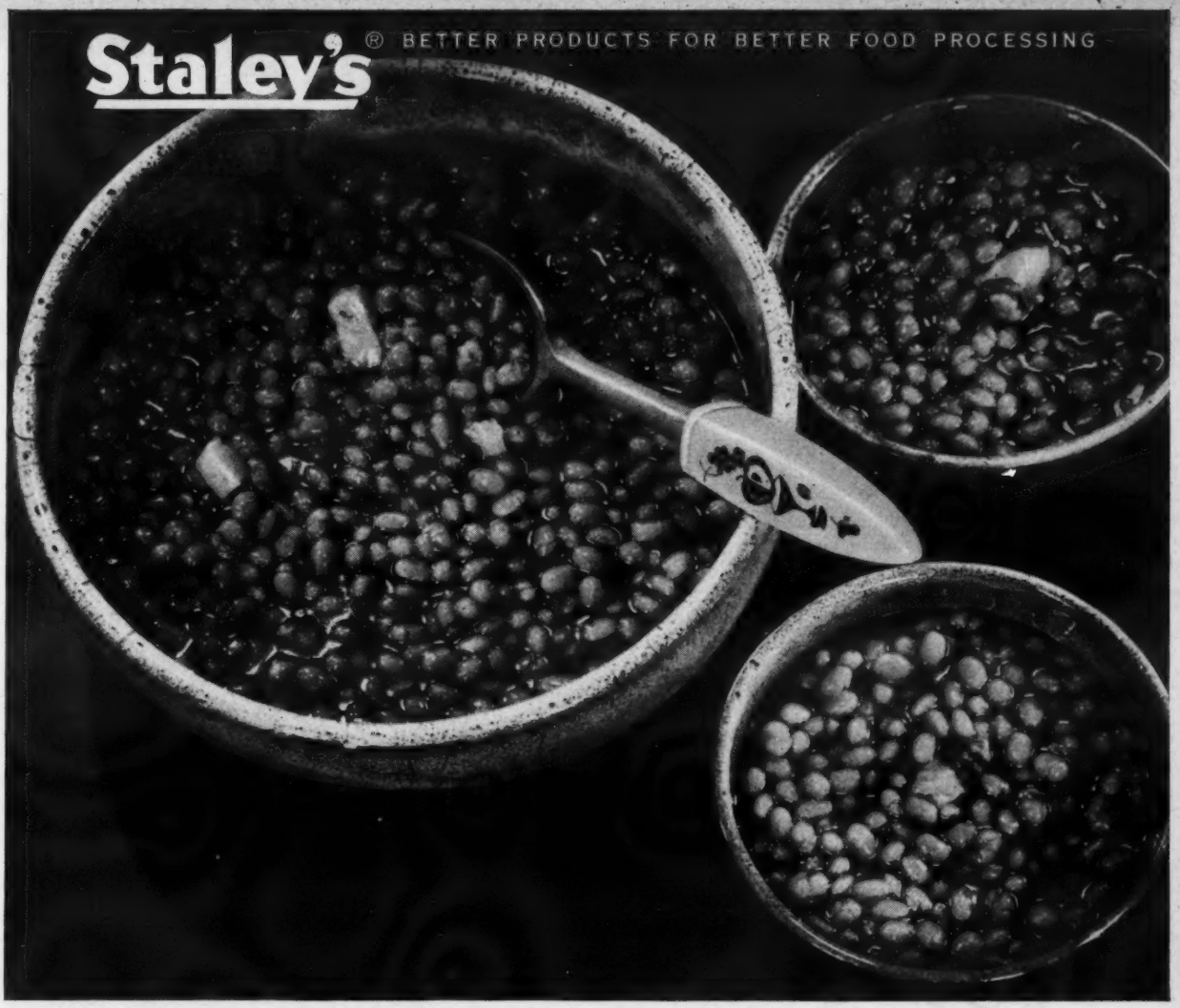
Handbook on fruit freezing with vitamin C has entered its fourth edition. Completely revised, it includes latest processing procedures. Products discussed are: peaches, apples, apricots, bananas, strawberries and other berries, cherries, pears, pineapples, prunes and plums, nectarines, fruit cocktail, fruit purees and applesauce, fruit sundae toppings, and dietetic packs. There is also information for bulk users of frozen fruit such as jam, jelly, and preserve manufacturers, pie bakers, and ice cream processors.

"Processing Frozen Fruit with 1-Ascorbic Acid", illustrated, 36-page, loose-leaf handbook, is available from Vitamin Div., Hoffmann-La Roche Inc., Nutley 10, N. J.

For more information circle 5867 on Reader Service Slip.

READER SERVICE

For more information on ingredients for foods and animal feeds described in these articles . . . use the convenient, self-mailing Reader Service Slip opposite the inside back cover.



Modern low cost way insures precise control of browning and sweetness in your pork and beans

Sweetose Syrup delivers more appetizing color, balanced sweetness, zestier flavor. Cuts sweetener handling costs by 96.2%!

What sells beans? Color? Flavor? Price? You know it's all three. But are you fully aware of how completely Sweetose Syrup can fulfill these objectives and more?

Enzyme-converted Sweetose will help you control browning—give your beans an appetizing oven brown color that builds customer loyalty. Sweetose offers a balanced sweetness that never varies. You'll notice a succulent old fashioned zing in the first batch you process with this "Cream of Corn Sweeteners."

As for price, Sweetose effects economies while building the quality of your name. From 25% to 50% of your sweetener can consist of Sweetose. And some of America's largest food processors have proved Staley's 3-step system of handling corn syrup saves up to 96.2% in handling costs.

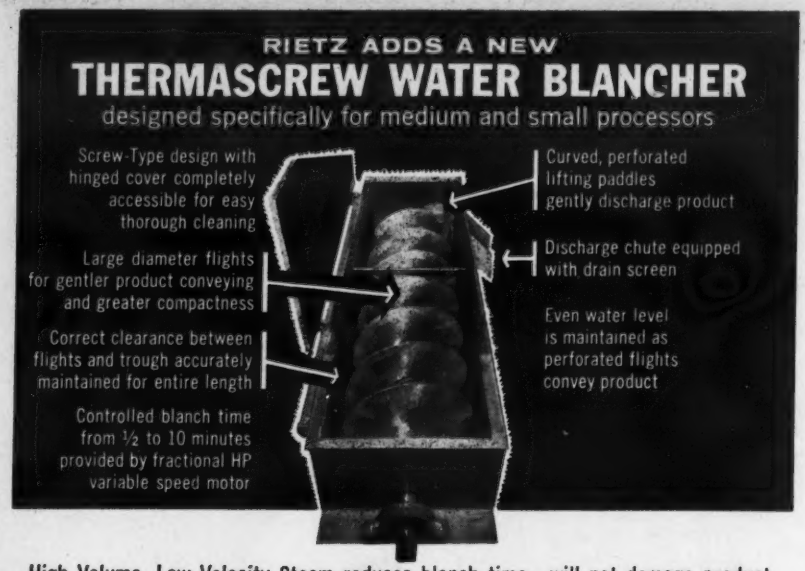
Look into the advantages of Sweetose today. Call your Staley man collect at the branch nearest you—or write to Staley's, Decatur for more information.

A. E. Staley Mfg. Co., Decatur, Illinois
Branch Offices: Atlanta • Boston • Chicago • Cleveland • Kansas City
New York • Philadelphia • San Francisco • St. Louis

Sweetose®
CORN SYRUP

5868 on Reader Service Slip

RIETZ ADDS A NEW
THERMASCREW WATER BLANCHER
designed specifically for medium and small processors


Screw-Type design with hinged cover completely accessible for easy thorough cleaning
Large diameter flights for gentler product conveying and greater compactness
Correct clearance between flights and trough accurately maintained for entire length
Controlled blanch time from ½ to 10 minutes provided by fractional HP variable speed motor
Curved, perforated lifting paddles gently discharge product
Discharge chute equipped with drain screen
Even water level is maintained as perforated flights convey product

High Volume, Low Velocity Steam reduces blanch time—will not damage product.
Positive Conveying Action assures uniform blanch.
Compact and Efficient Replacement for belt and reel blanchers.
Lower Installation and Operating Cost.

Rietz MANUFACTURING CO.
Santa Rosa, Calif. • West Chester, Penna.

For additional information, answers to specific questions, or laboratory testing of your product in this machine, write to Rietz.

5869 on Reader Service Slip

CY BELT says

"I can increase your production and profit!"

In some plants, production is held up because of delays in moving material from one processing stage to another. If this happens, even occasionally, in your plant, perhaps an analysis of your present method of handling materials could show you where and how to eliminate time-wasting procedures. A Cyclone Conveyor Belt representative will be glad to help you make such an analysis, without obligation to you. Because Cyclone Metal Conveyor Belts are made in many sizes, designs and materials, his recommendation will be tailored to the needs of *your* plant and *your* product. Why not fill in the coupon below?

USS CYCLONE
METAL
CONVEYOR BELTS
SPIRAL WOVEN
FLAT WIRE · FLEX-GRID

CYCLONE FENCE DEPARTMENT
American Steel & Wire Division
United States Steel Corporation, Waukegan, Illinois
United States Steel Export Company, New York

MAIL THIS COUPON

Cyclone Fence
Dept. K-127, Waukegan, Illinois
Please have your trained representative call on us to discuss our production problems.

Name.....
Company.....
Address.....
City.....State.....

UNITED STATES STEEL

5870 on Reader Service Slip

Don't grind — pulverize with ricochet action

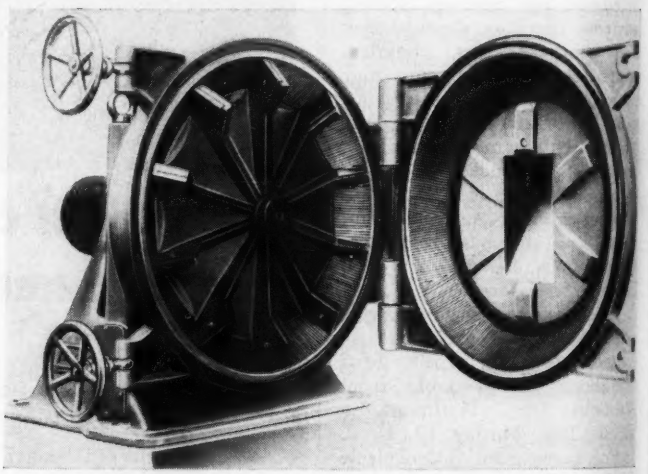
Compact, one-man wet-mill breaks particles down to micron size . . . more than doubles corn output for tamales, tortillas

ALEX MORALES, President
Alex Foods, Inc.
and **KARL ROBE,** Associate Editor

Problem: Sales of Mexican foods have skyrocketed in the post WW II era, and Alex Foods, Anaheim, Calif., has expanded rapidly in this field. This upsurge overtaxed existing production facilities, requiring additional equipment.

Basic starting ingredient for most Mexican foods is masa harina — a wet corn meal made by soaking corn for several hours in water, then milling the wet kernels. Existing grinders at Alex Foods consisted of two stone grinders, each with two 10" millstones rotating face-to-face, with corn fed between for grinding.

To take care of immediate



Mill consists of a high-speed impeller rotating in a vertical plane, inside an outer baffle ring which is rotating rapidly in the opposite direction. The roto operates between rotating ring in back, and a stationary baffle ring immediately in front, of rotor. Product feeds downward by gravity against the rotor. This rotating impeller hurls the material at high impact against the front baffle and against the rotating rear baffle. Thus, individual particles are subjected to violent ricochet action until they finally are reduced to a fine enough size to pass outward through the narrow clearance around outside of baffle plates. Particle size can be adjusted by moving the front (stationary) baffle plate nearer to, or farther from, the rotating impeller. Such adjustment, requiring only a minute or so with wrench and feeler gage, obtains particles down to micron range for many materials. Mill operates with one 25 hp motor to turn baffle ring, and a 40 hp motor to turn impeller. Baffle plate diameter is 25". Front of mill opens by loosening two hand wheels to expose all pulverizing surfaces for steam cleaning.

needs, four mills of this type were needed. However, certain production headaches were involved with such an installation. The stone mills required considerable floor space. Stone upkeep was high. Frequent refacing of stones was necessary to keep surfaces uniform and to compensate for uneven wear.

Furthermore, constant attention was necessary whenever they were in operation. If corn input stopped momentarily, stones frequently "froze" together, causing a burned out motor as an additional hazard.

Solution: Following investigation of several means for milling wet corn, a German-designed attrition mill (see photo), now available in the US, was tried. Samples of wet corn were ground in Los Angeles laboratory of the US distributors of the mill. Resulting masa, after evaluation

Wet corn (foreground) is elevated to mill inlet automatically by screw conveyor

for use in tortillas, tamales, and other Mexican food products of Alex Foods, was found satisfactory.

Results: High capacity German-designed attrition mill requires only about 4' x 4' floor space, and handles an output which would have required four grinders formerly. New mill has reserve capacity to take care of any conceiv-

(*Continued on next page*)

Gentle as a to baby foods

fmc
Hi-Pressure
steam peeler

Three FMC Steam Peelers prepare a variety of fruits and vegetables for baby foods at Beech Nut's San Jose, California plant.

LOOSENS FRUIT AND VEGETABLE SKINS FAST WITH MINIMUM HEAT PENETRATION TO THE PRODUCT

No harsh chemical solutions used with this equipment! Products are simply exposed to steam under pressure (up to 120 P.S.I.G.), and in a matter of seconds even the toughest skins are uniformly loosened, making skin elimination easy, fast and thorough. There's no damage to the tender subsurface nutritional layers of the product, no excessive product waste.

Built for various capacity requirements up to 10 tons per hour, the FMC Steam Peeler increases yield by 7% to 10% or more, at the same time doing away with the high cost and disposal problems associated with chemical peeling. Such fruits and vegetables as pears, peaches, apples, carrots, beets and potatoes are gently and efficiently processed in continuous, automatic operation.

Full information is contained in our "Steam Peeler Facts" Bulletin, Volume 5, No. 2. Write for your copy today, or call your nearest FMC representative.

fmc
Key To food equipment

FOOD MACHINERY AND CHEMICAL CORPORATION

Canning Machinery Division

General Sales Offices:
WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

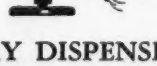
5871 on Reader Service Slip

This highly significant new development permits use of inert gas as the propellent in pressure packaging of many new products, including foods, condiments and sauces.

Immediate inquiries are invited on:

LIQUID STREAM DISPENSING—
Regulated stream dispensing of chocolate, coffee, concentrates and other food products.

DROP DISPENSING—
Metered drop dispensing ideal for sauces, condiments, dressings, bitters, sweeteners and many other products.



INERT SPRAY DISPENSING—
Pressure packaging of a multitude of new products not possible prior to Inert Gas propulsion.

PRODUCTION FACILITIES NOW AVAILABLE

We invite you to use our extensive laboratory facilities for sampling, advice, formulation, product improvement.

Write, wire or telephone now for more information on Inert Gas propulsion.

POWR-PAK, INC.
643 North Avenue, Bridgeport, Conn.
FOrest 7-6495

5872 on Reader Service Slip

(*Continued from preceding page*)

able production increase.

Formerly, milling operation was begun hours before cooking started. Now, the big mill grinds enough in four hours to supply all cooking needs for a full shift. Thus, one man can operate mill, thoroughly clean it after production needs have been fulfilled, and report for other duties during same shift. Production department is highly satisfied with machine, as their down-time troubles have been completely eliminated.

Pallmann Turbo-Mill is distributed in US and Canada by Mc-Le-Be Corp., 1615 E. Mauretania St., Wilmington, California.

For more information circle 5873 on Reader Service Slip.

All-plastic lift check valve developed

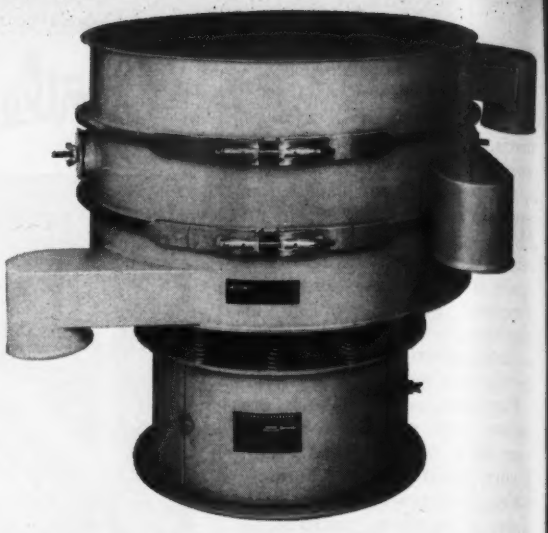
Body and components of new lift check valve are made of normal impact rigid polyvinyl chloride, providing high corrosion resistance to alkalis, acids, inorganic salt solutions, and other corrosive flow material.

PVC spring positions disc, assuring quick, complete shutoff

Valve operates successfully at pressures up to 150 psi at 75°F. Comes in either threaded, solvent-weld socket-type, or with flanged ends for pipe from ½ through 2 inches in size.

Plastic lift check valve was developed by Walworth Co., 60 East 42nd St., New York, New York.

For more information circle 5874 on Reader Service Slip.



NEW 30" SWECO SEPARATOR SPEEDS FOOD PROCESSING

Spiral travel is the key to lower processing costs with SWECO's 30" Vibrating Screen Separator—the new intermediate size separator that combines the accuracy and big production capacity of SWECO's 18" and 48" models in one highly versatile unit. Screening area of the new model is 4.2 square feet, which is four times greater than that of the 18" unit and 40% the size of the 48" model.

Depending upon the product being processed, SWECO Separators usually will increase production from 50% to 200% per square foot of screening area. That's because spiral travel spreads material over the entire screening surface, which gives the SWECO Separator greater capacity per square foot of screening area than conventional screening devices.

This unique separator assures you cleanest separation, most accurate sizing. In achieving high-volume production through screens of finer meshes than ever before possible, the SWECO Separator extends the field of application to more than 200 different materials—hot or cold, heavy or light, wet or dry, coarse or fine. New intermediate size 30" SWECO Separators are available with one, two or three decks. All models may be equipped with dust covers.

Longer Screen Life, Minimum Upkeep

Unusually long screen cloth life of SWECO Separators virtually eliminates down-time and lost production. When replacement is necessary, screen cloth change is fast and easy. Design simplicity has reduced the number of wearing parts, which assures low upkeep. The SWECO Separator's motor consumes less power than other separators of equivalent capacity, and the entire load is spring-supported for free vibration, thereby reducing power requirements.

Screening Analysis and Recommendations Available

Your nearby SWECO District Engineer is available to help you with special screening problems. He will demonstrate in your plant how a SWECO Separator can screen your material economically and efficiently. There is no cost or obligation, of course.

Ask for catalog describing the new 30" SWECO Separator and its applications. Write for Bulletin S-120-4.

SWECO SEPARATORS
SOUTHWESTERN ENGINEERING COMPANY
4800 Santa Fe Ave., Los Angeles 58
LUdlow 3-6262—Cable: SWECOLA

Engineers and Constructors . . . Manufacturers

5875 on Reader Service Slip

Antifoam data sheet

Use of antifoam for food processing applications is described in a data sheet.

Various properties are given as well as means of application.

"Antifoam F-20" data sheet is available from Hodag Chemical Corp., 7247 N. Central Pk., Chicago 45, Ill.

For your copy simply circle 5876 on Reader Service Slip.

Automatic drum warmers

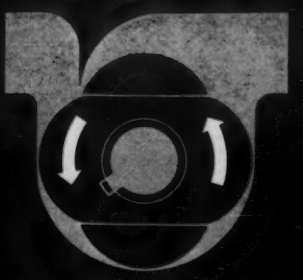
Automatic drum warmers are described in this 2-page bulletin.

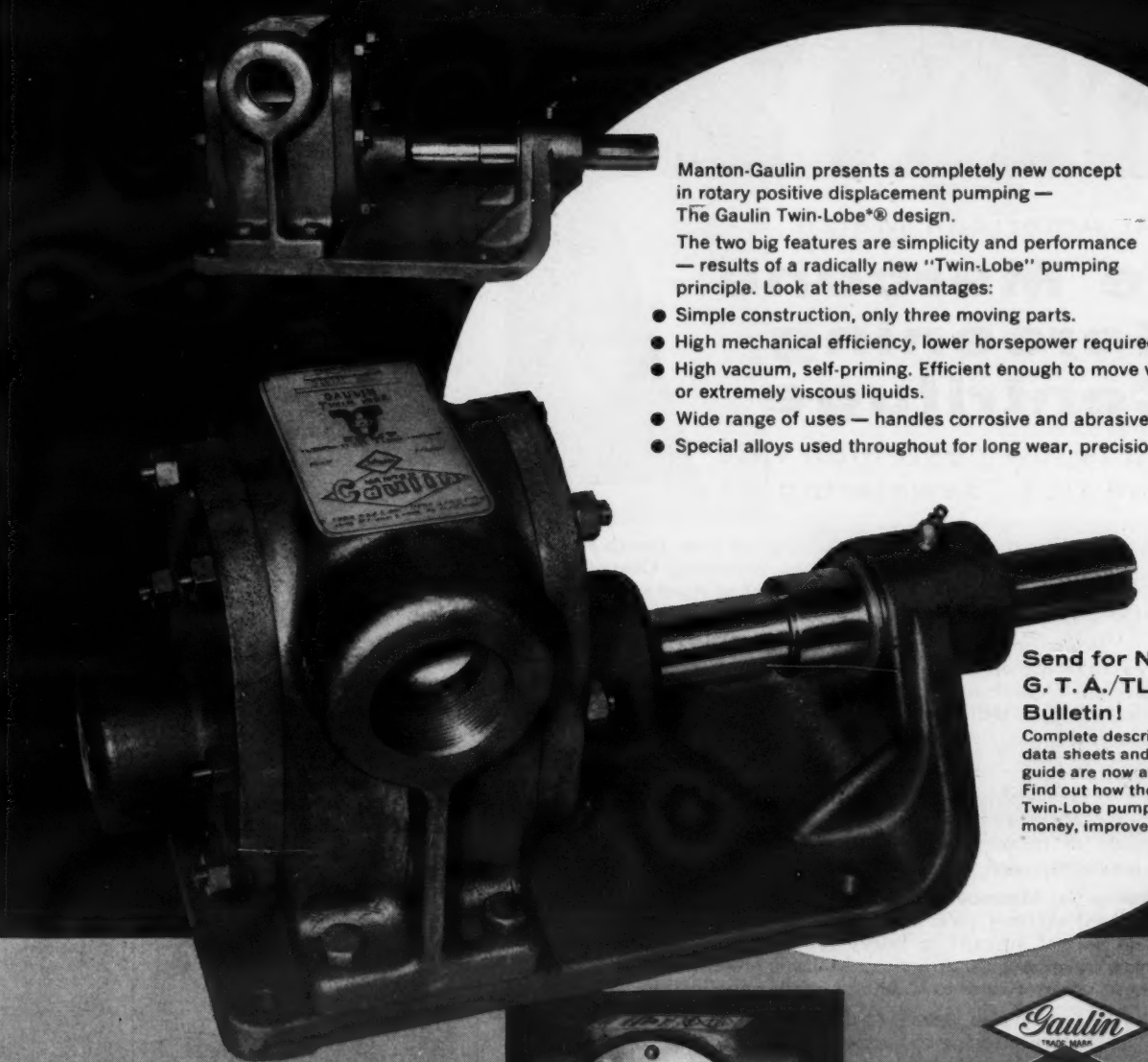
"Palmer Automatic Drum Warmer" bulletin is available from The Harold Palmer Co., 28625 Grand River Ave., Farmington, Mich.

For your copy simply circle 5877 on Reader Service Slip.

For more information on product at right, circle 5878 see information request blank opposite last page.

NEW TWIN-LOBE® Positive Displacement PUMP*





Manton-Gaulin presents a completely new concept in rotary positive displacement pumping — The Gaulin Twin-Lobe*® design.

The two big features are simplicity and performance — results of a radically new "Twin-Lobe" pumping principle. Look at these advantages:

- Simple construction, only three moving parts.
- High mechanical efficiency, lower horsepower required.
- High vacuum, self-priming. Efficient enough to move volatile gases or extremely viscous liquids.
- Wide range of uses — handles corrosive and abrasive materials.
- Special alloys used throughout for long wear, precision fit.

Send for New G. T. A./TLP-57 Bulletin!

Complete description, data sheets and application guide are now available. Find out how the new Twin-Lobe pump can save money, improve quality.

One Basic Design good for many uses

Liquids, heavy slurries, pastes, soft food solids, emulsions, gases, and light non-lubricating liquids

*Pat. Pending

Capacity and size range

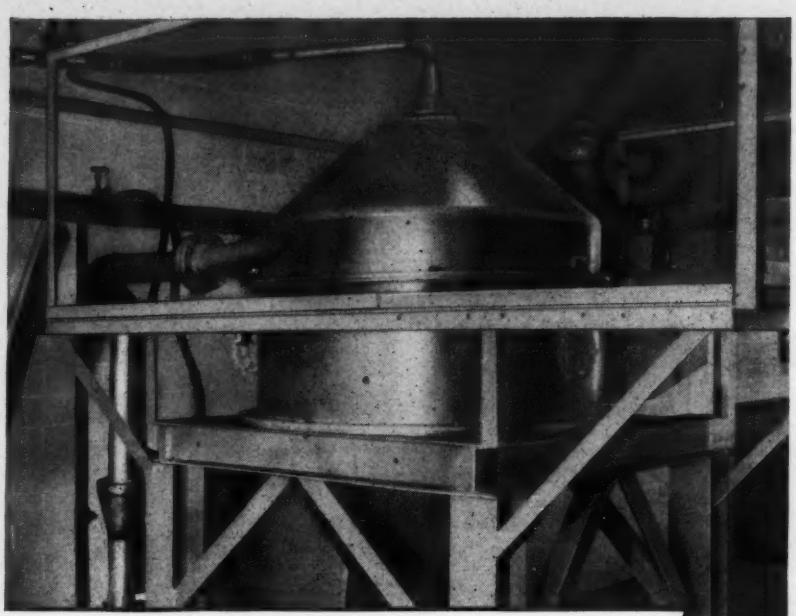
Three models now available. Capacities: 0-56 gpm; Pressures: 0-200 psi.

Gaulin TRADE MARK

MANTON Gaulin

59 GARDEN ST. EVERETT 49, MASS.

World's largest manufacturers of stainless steel reciprocating, rotary, pressure exchange pumps, dispersers, homogenizers and colloid mills.



At American Maize

The Mercone Screening Centrifuge

provides low cost, high rate fine fiber dewatering...

Dewatering tailings containing 92 to 95% moisture from fourth stage fine fiber washing equipment, the Mercone Screening Centrifuge, Model C-400 installed at the Roby, Indiana plant of American Maize Products Co. performs several important functions.

First — "Prime product" recovery is high, filtrate from the Mercone contains higher quantity of starch not recovered in previous washing steps. At American Maize, the starch content in the Mercone feed is reduced 7 to 10 percentage points.

Second — The higher protein content of fine fiber discharge, due to greater starch removal, means increased production of premium grade gluten meal by-product.

Third — The Mercone tails contain 70 to 80% moisture and can be dried directly or further dewatered mechanically, high labor cost methods previously used are eliminated.

In addition — the Mercone Screening Centrifuge is a compact, completely enclosed sanitary unit. Virtually vibration-free, the Mercone requires no special support or heavy foundation. The evidence of satisfactory performance at American Maize is presented by the company's recent order of another C-400 for similar application.

If you'd like more information on this new tool for the food processing industries, just drop a line to — Dorr-Oliver Incorporated, Stamford, Conn.

Mercone is a trademark of Dorr-Oliver Incorporated.

DORR-OLIVER INCORPORATED

WORLD WIDE RESEARCH • ENGINEERING • EQUIPMENT

STAMFORD • CONNECTICUT • U.S.A.

5879 on Reader Service Slip

Spray nozzle has shutoff for manifold line service

Uses: Designed primarily for manifold installations, where selected nozzles must be independently shut off to meet varying spraying requirements.

Features: Has manually operated shutoff assembly. To close nozzle, the shutoff screw is turned down to hold diaphragm in shutoff position. A winged nut firmly holds shutoff screw in place. As an additional feature, when shutoff screw is in an open position, it causes diaphragm valve to shut off nozzle as soon as manifold line is closed. This eliminates any dripping that might otherwise occur as line pressure is reduced.

Description: Nozzles are made in brass with internal Monel metal strainer. A choice of interchangeable orifice tips are available, covering a considerable capacity range as well as selection of full cone, hollow cone, and flat spray patterns.

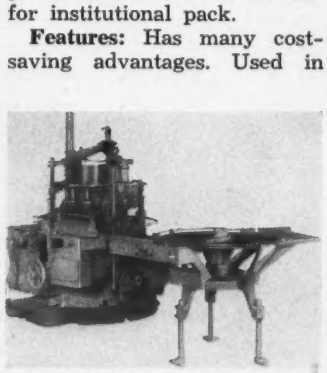
Spray nozzle for shutoff on manifold lines is built by Spraying Systems Co., 3213 Randolph St., Bellwood, Ill.

For more information circle 5880 on Reader Service Slip.

Pre-vacuumize, add syrup or brine for institutional pack

Uses: Pre-vacuumizes and adds syrup or brine to food products filled in No. 10 cans for institutional pack.

Features: Has many cost-saving advantages. Used in



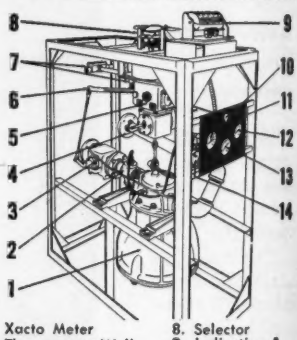
Machine's capacity equals two conventional syrupers, eliminating multiple equipment and reducing floor space

Blends many liquids automatically with unexcelled accuracy

Bowser precision proportioners automatically and accurately blend two or more liquids in closed, continuous production.

A simple setting of the percentage selectors provides any variation of blend from ½% to 100%. XACTO, "the world's most widely used meter," assures perfect proportioning of all liquids being mixed, compounded or blended.

SIMPLICITY OF DESIGN SAVES SPACE . . . REDUCES MAINTENANCE



1. Xacto Meter
2. Thermometer Well
3. Inlet Control Valve
4. Differential
5. Control Nut
6. Valve Control Arm
7. Pump Control Circuit & Switch
8. Selector
9. Indicating & Totalizing Dial
10. Flow Indicator
11. Inlet Pressure Gauge
12. Discharge Pressure Gauge
13. Dial Thermometer
14. Discharge Check Valve

DIALS FOR EVERY PURPOSE

Model K — furnishes printed record of quantity dispensed or received for accounting; Model P—delivers predetermined quantities up to 10,000 gallons; Model RP — delivers predetermined quantities, repeating each quantity automatically.

FREE OFFER . . .

Write for full color, 12-page Facts Folder titled, "XACTO PRECISION BLENDING SYSTEM."

BOWSER INC.

1304 E. CREIGHTON AVE.

FORT WAYNE, INDIANA

5881 on Reader Service Slip

connection with a steam flow closer, can save up to 1000 lb of steam/hr. Saves up to 2¾ oz of syrup/can. Contributing to this is extreme filling accuracy, smooth single transfer to closing machine, positive shut-off valves, and "no-can no-fill" mechanism which prevents discharge of syrup if can is not in receiving position. Any syrup pulled over in vacuum line is recovered in a syrup tank and returned to supply tank.

Description: Machine employs sturdy cast-iron frame construction for heavy-duty operation. Designed to meet strict sanitary requirements, smooth-finished stainless and non-corrosive contact parts are easily accessible for thorough cleaning.

Pre-vacuumizing syruper is made by Food Machinery and Chemical Corp., Canning Machinery Div., P.O. Box 1120, San Jose, Calif.

For more information circle 5882 on Reader Service Slip.

Production dissolvers offer increased mixing power and flexibility

Large capacity mixer brings variable speed to big batch mixing. Enables operation at optimum speeds from 900 to 2100 rpm to handle wide variety of mixing and dispersing problems. Unit is powered by a 7½ or 10 hp motor, and has hydraulic lift for 42" maximum rise. Bridge may be swung in 180° arc.

A second large capacity lift-type mixer occupies small working area, while making possible application of 20 to 40 hp, 1800 rpm motors for handling big volume and high viscosity batches. Sheaves make speed range of impeller-shaft 900 to 1500 rpm. Hydraulic lift allows 48" maximum rise. Bridge swings in 150° arc. Net weight of entire unit is 2000 lbs.

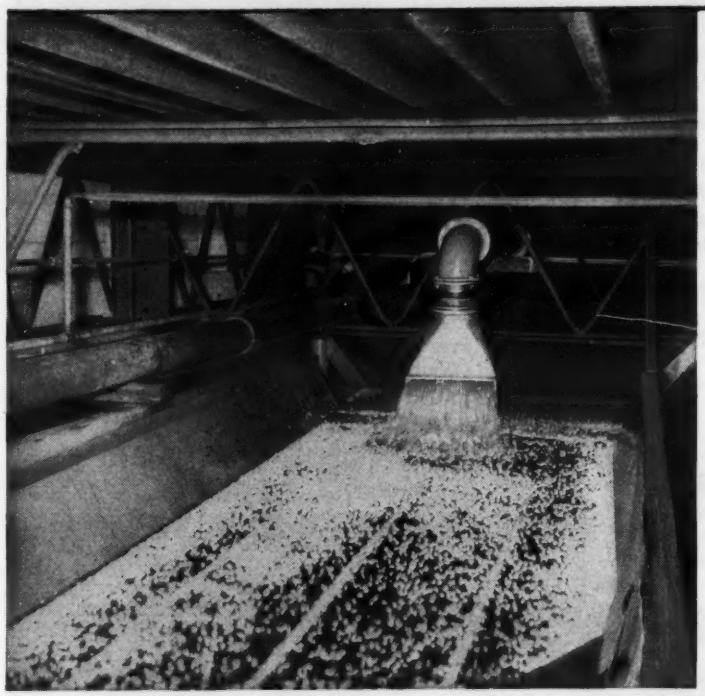
Both mixers are made by Morehouse-Cowles, Inc., 1150 San Fernando Rd., Los Angeles 65, Calif.

For more information circle 5883 on Reader Service Slip.

SIMPLICITY

new developments in food screening

INFORMATION ON PROCESSING FOOD AND WASTE PRODUCTS



SIMPLICITY SCREENS DEWATER 3-4,000 LBS. VEGETABLES HOURLY

A major producer of frozen foods uses this 3′ x 8′ Model "C" single deck screen to dewater 4,000 pounds of corn per hour, using a hydro-pump with a capacity of 250 gallons of water per minute.

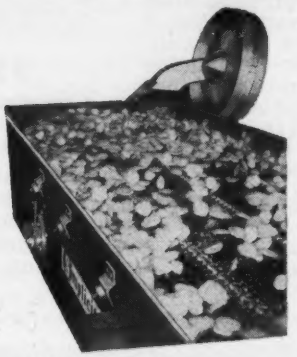
The stainless steel wire cloth deck has longitudinal slotted openings of 1/10″ x 1″. The same producer also uses this screen to dewater 3,000 pounds per hour of field run peas. The screen removes excess moisture from these products so effectively, that they are fed directly from the screen to a freezing belt.

SCALPING OVERSIZED MATERIAL FROM POWDERED COFFEE BRINGS ORDER FOR 2ND SIMPLICITY MACHINE

A large instant coffee producer is using a Model OA-10-52 3′ x 10′, totally-enclosed single deck flat screen for scalping oversize material from the product. The powdered coffee, weighing 15# per cubic foot is screened at a rate of 6,000 pounds per hour on the 14-mesh stainless steel deck. This machine proved so satisfactory that the company ordered a duplicate unit.

The Simplicity flat screen can be used for handling many food products, and is easy to clean. The two-shaft, oscillating assembly gives a positive feeding action, even if the screen is set on the horizontal.

Available in many sizes and models; you'll find one just right for your screening problem. Write today for details.



PICKLE SLICES—1% REJECTS

The 3′ x 8′ Simplicity 2-deck Pickle Screen was developed for both slices and relish. Bottom decks can be either a solid pan or screen cloth, with top deck opening to suit individual needs. The screen cloth is very effective for seed removal in relish stock.

One large operator reported that, after installing this screen, rejects dropped from six per cent (the average with hand picking) to one per cent or less with the Simplicity! Production is 135 bushels per hour, and can be further increased by use of spray bars. Available in several sizes, these screens are "a must" for producers who want to improve their product.

199

FOR THAT SEWAGE PROBLEM

Above is a typical Simplicity sewage screen installation. These screens are being used by food manufacturers throughout the United States for removing solids from their waste water. With the sewage problem increasing steadily, it will pay you to investigate these low-cost, low-maintenance units.

There is a unit size manufactured to suit every need, large or small. The 2′ x 3′ Model "C" will handle 250 GPM, a 2′ x 6′—400 GPM, a 3′ x 6′—600 GPM, and the 3′ x 8′ will handle from 800 to 1,000 GPM. Stainless steel cloth with 20, 30 or 40 mesh openings can be installed at customer's request.

Write for information on any of these pieces of equipment or for Bulletin FC-3

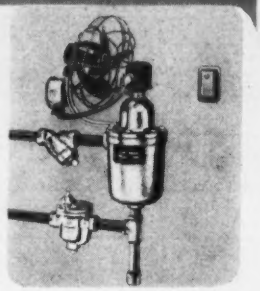
SIMPLICITY ENGINEERING COMPANY, DURAND 6, MICHIGAN

SALES REPRESENTATIVES IN ALL PARTS OF THE U.S.A. • FOR CANADA: Simplicity Materials Handling Ltd., Guelph, Ont. • FOR EXPORT: Brown and Sites, 50 Church St., N.Y. 7, N.Y.

5884 on Reader Service Slip

GET "CLEAN" HUMIDIFICATION

no "fallout" with ARMSTRONG STEAM HUMIDIFIERS



No "fallout" of mineral dust or water to contaminate your products when you use Armstrong Steam Humidifiers. Steam is distilled vapor—contains no solids. And, the inner chamber of Armstrong humidifiers is steam-jacketed to evaporate any condensation.

USES

- Processing and Storage
- Cold Storage Rooms
- Laboratories
- Packaging Departments

Armstrongs give you other advantages, too—simple design, low-cost, easy to install (like unit heaters), accurate humidistat control (within 2 to 4% of setting), high-quality construction. They're guaranteed to satisfy.

Several models available . . . discharge directly into room, or into ducts or plenums.

Get the full story on humidification, plus complete data on Armstrong Steam Humidifiers, in Bulletin 500. Ask your local Armstrong Representative for a copy, or write today to:

ARMSTRONG MACHINE WORKS
8816 Maple Street, Three Rivers, Michigan

5885 on Reader Service Slip

SPRAY NOZZLE REFERENCE MANUAL

write for your free copy today

- to help you improve a spraying operation
- to help you lower a spraying cost

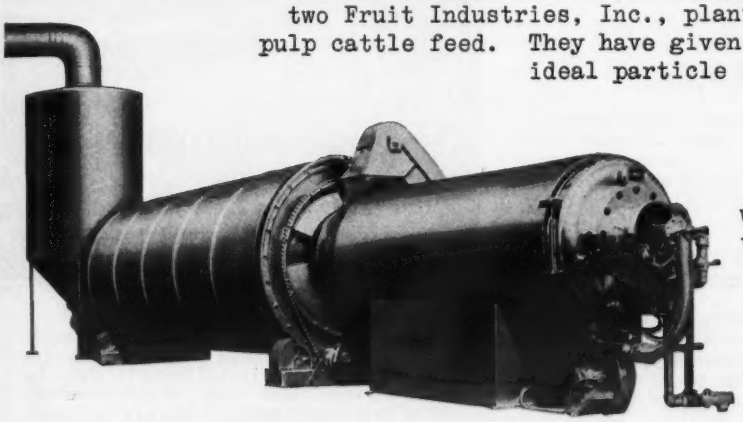
The most complete industrial spray nozzle catalog ever produced. Gives you reference data on thousands of standard and special spray nozzles for every type of spraying.

WRITE FOR your free copy of Catalog No. 24

SPRAYING SYSTEMS CO.
3213 Randolph St. Bellwood, Illinois

5886 on Reader Service Slip

4 Heil Dryers make citrus pulp feed!



"We use one 6,000 - lb and three 15,000 - lb Heil dryers at our two Fruit Industries, Inc., plants in Florida to produce citrus pulp cattle feed. They have given us excellent moisture control, ideal particle size, economical and dependable service. The pulp comes from tons of oranges squeezed for fresh juice. The juice is refrigerated and shipped by water to New York City and distributed through local milk deliveries as far west as Iowa."

Anthony T. Rossi, President
Fruit Industries, Inc.

Food by-products are carried on a stream of hot air in the Heil dryer. Having three cylinders in one drum accurately controls moisture and lowers costs by—

Automatically providing a 3-stage drying process with changing temperatures and air velocities ideally suited to changing moisture content.

Automatically establishing correct exposure time for each particle, based upon weight due to moisture content.

Making use of radiant heat given off by center and intermediate cylinders.

Compound showering flights assure ideal utilization of the drying medium, maximum air activity in all areas of the drying drum, and maximum evaporating capacities within a compact machine.

WRITE, WIRE or CALL for further information.

THE HEIL CO.
(Manufacturers of Ardrier Dehydrators for the Arnold Dryer Co.)
3000 W. Montana Street, Milwaukee 1, Wisconsin

5887 on Reader Service Slip

processing

Bind Teflon to itself or other materials

Problem: While the unusual properties of Teflon have made it one of the most promising engineering materials, its usefulness has been limited because of difficulties in attaching it to itself or other materials.

Solution: Three adhesives now permit effective bonding of treated Teflon to wood, steel, glass, aluminum, copper, ceramics, plastics, or any other material that will bond with adhesive.

A special treatment etches the material surface to make it accept adhesives. Depending on application, either one or both surfaces can be treated for bonding. As a group, the adhesives meet requirements for strength, chemical resistance, flexibility, and temperature resistance for practically all Teflon bonding applications.

Results: Combination of treated Teflon and suitable adhesives broadens applications of various forms of Teflon. Tanks, vats, pipes, and digesters can be lined with this inert plastic. Cementable tape and sheets make high-grade insulation. The plastic can now be bonded to hoppers and conveyors for low friction facings.

Adhesives for bonding treated Teflon to itself or other materials (Ray-BOND) are products of Raybestos-Manhattan, Inc., Adhesives Dept., Bridgeport 2, Conn.

For more information circle 5888 on Reader Service Slip.

"You've got to convince me these magnets are strong enough to get the tramp iron out of our powder."

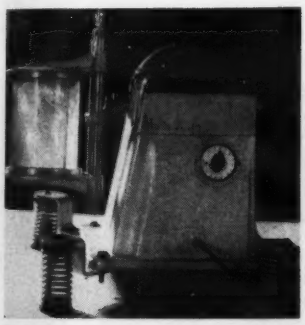
Synthetic filter cloth withstands 250°F

Has high tensile strength and elongation ranges

A synthetic fiber filter cloth, manufactured from olefin polymers commonly known as high density polyethylene, has a softening temperature of 260°F and is "steridizable" at 250°F. Textile strength is in the range of 50,000 to 100,000 psi, and elongation ranges from 5 to 10 percent. Fabric is finished so that exposure to temperatures in 230°F to 240°F range results in minimum shrinkage.

Synthetic filter cloth (Polymax) is a development of The National Filter Media Corp., 1717 Dixwell Ave., New Haven, Conn.

For more information circle 5889 on Reader Service Slip.



Paint shaker mixes food ingredients in regular production runs

Successful use of a paint shaker in mixing ingredients for regular production runs has been reported by a major food processor. Shaker handles ¼-pint to 1-gal cans. Equipped with a ¼-hp motor, unit operates at rate of 1350 shakes/min. A patented eccentric-action cuts average mixing time to about 2 min, according to consistency of material being mixed and size of can.

Paint mixer is manufactured by Red Devil Tools, Union, New Jersey.

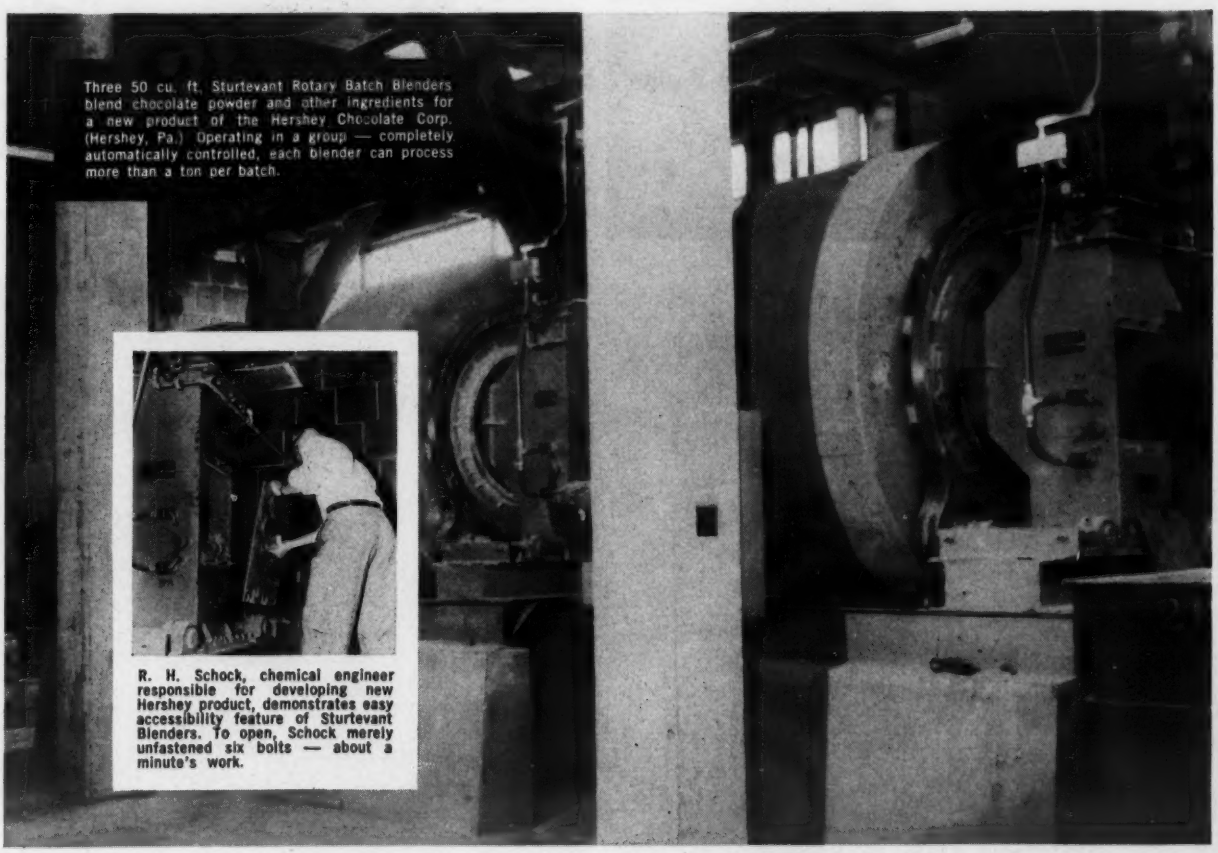
For more information circle 5890 on Reader Service Slip.

Sturtevant Blenders Help Hershey Control Consistency of New Product

Every chocolate lover knows that the texture and flavor of Hershey products always can be depended upon. Consistency is important to the Hershey people. With a new product just developed, they control consistency by using carefully tested ingredients, weighed automatically, and then mixed in Sturtevant Blenders. Operation of the Blenders also is automatic — even to their timing.

Consistency is a problem to many food manufacturers and processors, and frequently an all-important step in its attainment lies in blending. Sturtevant Blenders start delivering highly intimate blends in as little as 1 to 2 minutes — an entire blending cycle takes only 3 to 5 minutes. Consistency of each batch is assured by the Sturtevant 4-way blending action. The interior scoop distributing system operates gently, yet always produces a thoroughly integrated blend.

Sanitation is also of prime importance in food plants. Sturtevant dust-sealed design keeps ingredient fines inside the drum, oil and grease outside (no bearings inside drum). Moreover, drums are self-discharging, leaving little residue. 'Open-Door' accessibility allows entry and inspection in a matter of minutes. Complete cleaning can be done automatically (with the installation of injection sprays) or manually — with practically no downtime. Hershey, for example, keeps its three Sturtevants clean with the expenditure of only an hour per week of maintenance time.



Three 50 cu. ft. Sturtevant Rotary Batch Blenders blend chocolate powder and other ingredients for a new product of the Hershey Chocolate Corp. (Hershey, Pa.) Operating in a group — completely automatically controlled, each blender can process more than a ton per batch.

R. H. Schock, chemical engineer responsible for developing new Hershey product, demonstrates easy accessibility feature of Sturtevant Blenders. To open, Schock merely unfastened six bolts — about a minute's work.

Sturtevant Rotary Batch Blenders are available in nine standard models with capacities ranging from 25 to 900 cu. ft. Operation may be automatic, semi-automatic, or manual. Liquid injector pipes may be added for injecting liquids during blending or for rinsing afterwards. Materials of construction are carbon steel, stainless or Monel metal. Write today for descriptive brochure.

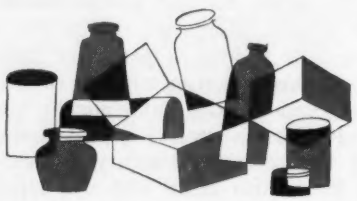
STURTEVANT MILL COMPANY

122 Clayton St., Boston 22, Mass.

CRUSHERS • GRINDERS • PULVERIZERS • MICRON-GRINDERS
AIR SEPARATORS • BLENDERS • MIXERS • FEEDERS
SCREENS • ELEVATORS • CONVEYORS

5891 on Reader Service Slip

packaging viewpoint



What's new in products and package design . . . a pictorial presentation . . .

Food for hunger . . . food for thought . . .

. . . is provided workers of General Cable Co. by means of plastic coated carry-out cartons used by that organization's cafeteria for moist foods and beverages. Series of four safety slogans is colorfully printed on the sides of these 12-oz containers. Company finds that employees like the convenient, dependable handling of lunch items, and show reaction to the repetitive safety messages. Cartons are made by Sealright Co., Inc., Fulton, N. Y.

"Cook it in the bag it comes in" . . .

. . . is the "convenience plus" idea offered in the frozen version of spaghetti made famous by Sussy's restaurant, Oklahoma City. This "heat 'n eat" specialty comes in an aluminum foil bag, packed in a rectangular paper carton, overwrapped with printed foil for double protection. Bag is sealed on three sides, with one end left open. Bag—containing 14 oz of spaghetti—is filled only half way. Open end can thus be folded several times to form a protective seal. To heat, bag is unfolded, placed in boiling water. Unsealed end is allowed to protrude above water level so that it will form a steam vent. Overwrap, imprinted in colors, has illustrated instructions on back. Entire package by Reynolds Co., Third & Grace Sts., Richmond 8, Va.

"What's cookin', Doc?" . . .

. . . why carrots, of course, just as suggested in colorful illustrations of dishes in which this vegetable may be used. These appear on polyethylene bags bearing the Bit-O-Gold brand name of Merit Packing Co., Salinas, Calif. Back of bags carry appetite-appealing illustrations and recipes which spur use of the carrots. Full rotogravure printing achieves faithful color reproduction. Background of bags is ruled in red, imparting a rosy hue to vegetables. Bags are supplied by Milprint, Inc., 4200 N. Holton St., Milwaukee 1, Wis.

Cylinder containers — very nice for spice . . .

. . . as convenient sifting feature is offered in addition to tight seal which preserves freshness. Compact shape of these glass containers saves space, while window openings in wrap-around labels allow a view of contents. Used by John Lecroy & Sons, Inc., Camden, N. J., for line of 14 seasoning items. Bottles made by Owens-Illinois, Toledo 1, Ohio.

Easy does it . . .

. . . is the main idea behind merchandising of product and package used by Beech-Nut Life Savers, Inc., for its long-popular peanut butter. Wide-mouth jar, with convenient closure, makes it easy to remove desired quantity, which then spreads easily. Easy-to-read label features a cocoa-and-brown color scheme utilizing horizontal stripe design. Still more color is added by cap's yellow background, with red band carrying a second "easy-to-spread" slogan. Jar is by Hazel-Atlas Glass Div. of Continental Can Co., 100 E. 42nd St., New York 17, N. Y.

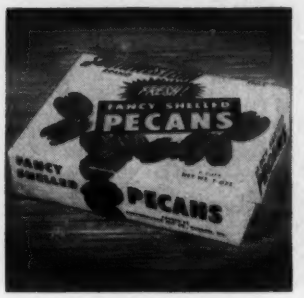
"Gay Nineties" touch . . .

. . . is imparted to these glass containers by their "Apothecary Shop" motif. Shari Candies, Inc., Mankato, Minn., adopted the jar shown at left as particularly appropriate for a line of 15 items such as "old fashioned peppermint drops". Script lettering on label adds to traditional appeal. Space-saving square shape adds to convenience in re-use for nuts, crackers, and similar items. Jar is made by Owens-Illinois Glass Co., Toledo, 1, Ohio. Equally effective approach to "yesteryear" styling is achieved by Lady's Choice Foods, Los Angeles, by attaching a glass candy jar top to metal closure of 4-lb preserve jar. Top is held in place by means of imprinted cellulose band. Jar by Thatcher Glass Mfg. Co., Inc., Elmira, N.Y.

Educational eating . . .

. . . or knowledge through nutrition, is idea offered kids in miniature cookies baked in shapes of the 48 states. Kids once used to ponder over animal crackers, trying to decide whether an elephant or a lion would be the next morsel. Now it's a matter of whether to devour New York, California, or even the whole of Texas. Cookies are packed in six different cartons, each containing a selection of eight states. Package is imprinted, with reproduction of tasty geograhical facsimiles, plus a list of the eight particular states, their capitals, and nicknames. Made by Sunshine Biscuits, Inc., Long Island City 1, N. Y.

Frozen pecan pack pleases . . .



. . . dealer and consumer. Both like this innovation, as pecans remain fresh in store's frozen food cabinet or home refrigerator. Packaging with colorful rotogravure wrapper has possibilities for distribution and promotion of other varieties of nuts because of ease and low-cost in handling, storing, and displaying. Illustrated wrapper printed by Pollock Paper Corp., P. O. Box 1078, Columbus, Ohio.

One chance out of four . . .

. . . this cheese is especially for you. Even if you're not diet minded, as so many are, you'll find it retaining texture and color of conventional cheese you use regularly. It provides expected flavor without introducing sodium except in the minute proportion of 3 milligrams/1-oz serving. Three package sizes cover wide range of user needs: 8 oz., 2½ lb, and 5 lb. Introduced under "Gold Crest" label by Swift & Co., Union Stock Yards, Chicago, Ill.

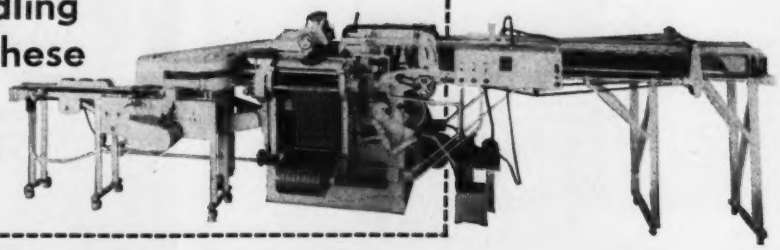
Canned hams in 3-lb size . . .

. . . and requiring no refrigeration open a new field for the meat packing industry. Hams remain firm in the "no-stick" lithographed cans. Shrinkage during processing has been reduced 100 percent. New size cuts costs in plant-to-retailer shipping, and at the same time, saves home refrigerator space. Can is made for Brennan Packing Co., Chicago by American Can Co., 100 Park Ave., New York, N. Y.

The Battle Creek Packaging Machine

Model 48

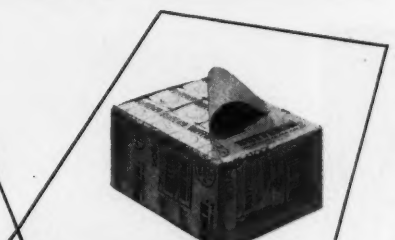
has handled bundling problems within these ranges at speeds up to 60 bundles per minute



to produce packages like these

480 Individual Raisin Packages Group Wrapped Per Minute by Battle Creek's *"Continuous Flow"* Process.

Strike Anywhere Matches Attractively Group Wrapped for Impulse Sales.



Corrugated Cartons eliminated and Substantial Savings Effected by Bundle Wrapping 12 Packages of Drugs.

CUSTOM DESIGNING

Model 48 —This specialized machine is 'tailored' to your small package group wrapping problems. Where automation is the objective; the smooth, vibrationless *"Continuous Flow"* process can be easily adapted. Typical users who buy the Model 48 bundling machine include manufacturers of drugs, matches, food processors . . . those whose production demands fast-trouble-free group wrapping at lower costs per package. In one case involving the wrapping of 1½ oz. raisin packages, two alternating accumulating devices each delivered 40 units of six (240 individual items) per minute to the Model 48 for wrapping at a speed of 80 groups (480 single packages) per minute. Other applications are equally dramatic, and the savings, equally valid. At one end of the scale the Model 48 handles maximum lengths of 12", widths of 7½" and heights of 4½." At the other end — minimum lengths of 6¼", widths of 2" and heights of 2" utilizing kraft, book, sulphite papers or others requiring glue for sealing purposes. Conversion from one size to another is quick, easy . . . with changeover time averaging about 30 minutes.

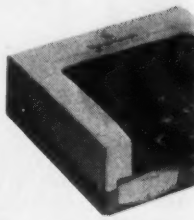
Call on Battle Creek Packaging Machines today, for complete service on your bundling problems.

"Continuous Flow" Packaging

BATTLE CREEK
packaging machines, inc.
108 TWELFTH STREET, BATTLE CREEK, MICHIGAN

See us at The Packaging and Materials Exposition, March 25-28, 1958, Atlantic City.

5892 on Reader Service Slip



"Picture window" carto de Kamp's filled, close and printed with vari

KARL ROBE
Associate Editor

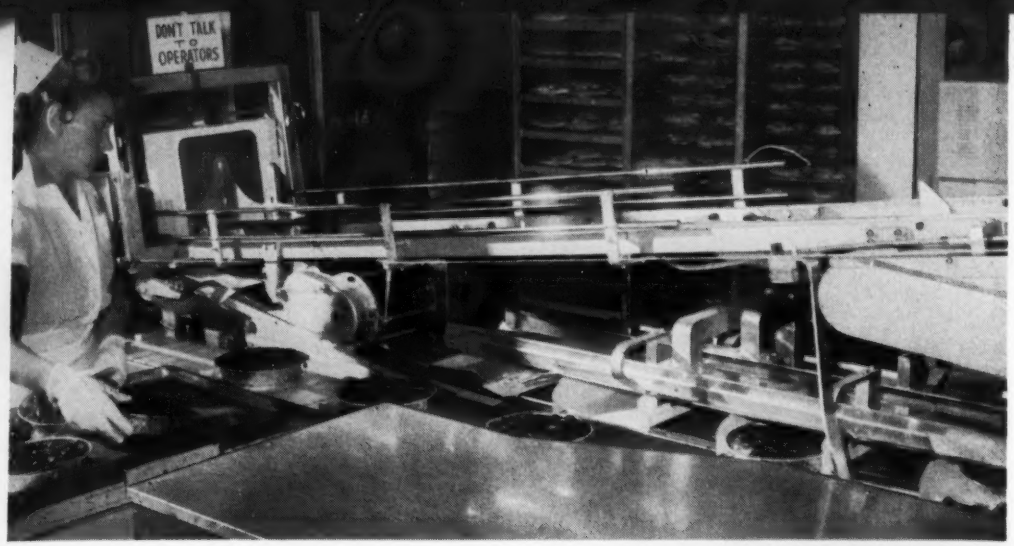
*Data checked by George I Production Superintendent, W. Purcell, Advertising Ma de Kamp's Holland Dutch Los Angeles; Max Sorenson D. Austin, Fibreboard Pape and L. R. Smida, General Wilcox Manufacturing Co.

Problem: Van de Holland Dutch Bake sell their products supermarket "bakery locations in the Gre Angeles metropolita have for years been i as a service bakery lease space in major identify the area as th by such devices as t miliar Dutch windm traditional blue-and decor. Courteous la starched blue-and Dutch girl uniforms a serve buyers.

Within the last fiv this service type of o has been in process of over to self-service. Kamp's had to packa complete lines of products — cakes, pie cakes, doughnuts, brea and specialty items — they "sold themselves" and pies offered a part tough problem.

This prepackaging n rowed down to a nee window-type carton. they would be sol

(*Continued on n*



Cartons from stack (above) feed to conveyor below, are opened automatically. Panned cakes or pies travel gently into open carton from parallel conveyor

At Van de Kamp's, one girl feeds panned cakes to cartoner as another keeps her supplied from racks

Cartons pies, panned cakes at 70 per minute

shelves, the carton had to have visibility from the front as well as from the top. This big-window effect increased design problems, since it materially reduced the stacking strength of the carton.

Solution: A satisfactory front and top window carton was developed for Van de Kamp by the supplier, incorporating an easily set up, self-locking design. Carton was set up and filled manually.

As volume increased in self-service items, Van de Kamp's again called upon the supplier of the cartons — this time for a machine which would automatically set up the cartons and secure them after manual placement of product in carton.

A prototype machine was developed to accomplish this job. It performed yeoman duty, but change-over from one size carton to another was a problem. Different, intricate heads were needed for each size carton, and wastage of cartons to adjust to new size slowed production.

A new machine has now been developed, and carton has been redesigned as an end-open glue type. Now, one or two girls feed the pies or panned cakes into the machine. For maximum rates, one girl unloads pies onto feed table, other girl places pies on conveyor. Cartons are automatically set up from feed stack, and fed onto a conveyor which runs parallel to the product conveyor.

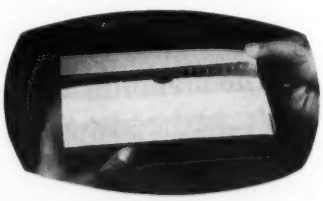
Aligning fingers on product conveyor gently direct each pie or cake into an open-end carton as carton proceeds on the adjacent conveyor at same speed. Filled carton continues through sealing section of machine, thence to girl at other end of conveyor who racks the packaged product.

Machine has an oversize carton hopper which will hold up to 1000 cartons, and a carton imprinting device.

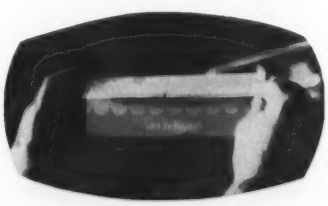
Results: Present machine loads pies and cakes into end-loading cartons at rate of 70 cartons/min for an 8" x 8" size flat carton. Change-over from one carton size to another is made in seconds — operator merely turns a vertical and a horizontal aligning wheel, and inserts new carton size in feed stack.

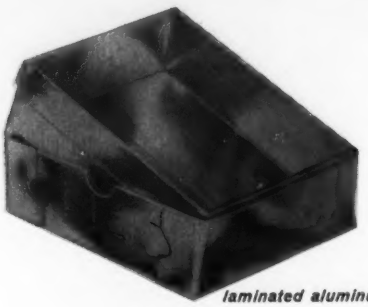
Each glue-sealed carton has an easy-open flap at one end — a slight pull on the tab opens the entire end. If all of the product is not used at one

(*Continued on page 67*)



High-visibility package has tear-strip easy opener at back for customer convenience





laminated aluminum frozen food carton

laminated aluminum dinnerware

Another Continental a

rigid aluminum foil container

aluminum spot crown

rigid aluminum foil tray

laminated aluminum display carton

aluminum package-

CANS

Working with aluminum isn't new for Continental. Over the years, Continental has introduced aluminum packaging in many forms —from closures and overwraps to rigid foil containers and laminated corrugated cartons. So it's only natural for Continental to be in the forefront in offering aluminum *cans*.

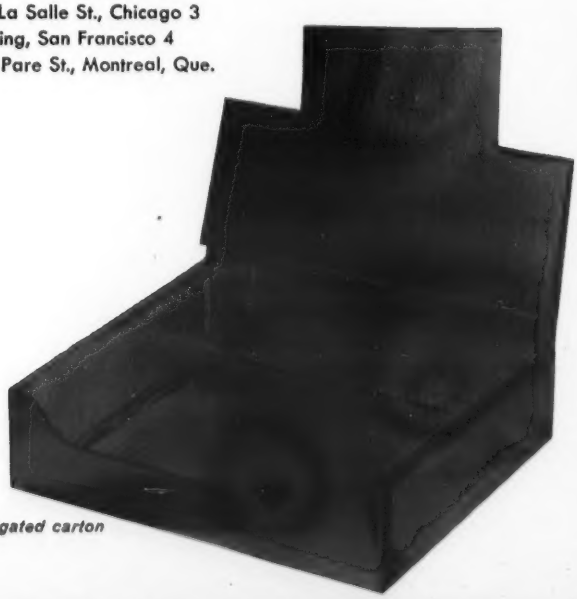
For complete information on sizes and styles, contact your nearest Continental sales representative . . . or write to any of the Continental divisional offices listed below.

QUALITY Continental SERVICE

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4
Canadian Division: 5595 Pare St., Montreal, Que.

aluminum foil overwrap



laminated aluminum corrugated carton

the new

'executive' size of

FOOD PROCESSING magazine

Have you noticed? . . . the past six issues of Food Processing have been different! Lay this copy on top an earlier issue of FP (any issue before June) . . . compare them. Hold the new issue in your hands . . . slip it into your brief case. It "fits" . . . it invites easy reading. This is the seventh consecutive issue to appear in the new *"Executive Size"* . . . designed for busiest-of-all food processing executives.

It named itself . . . the *"Executive Size"* . . .

Nineteen years ago Putman Publishing Company created the design for business magazines known as "King Size" . . . bringing theretofore unknown visibility and greater effectiveness in editorial presentation (yes, for advertising too). Scores of other magazines adopted this format, and use it today.

Now, the *"Executive Size"* brings you new advantages as well as retaining the best of the old.

Leaf anywhere through the magazine . . . editorial material everywhere . . . front and back. No solid sections of advertising pages . . . newspaper-width editorial columns invites easy reading throughout.

We think you'll find the new *"Executive Size"* of Food Processing easier to read, more interesting. *But* what do you think? Our first interest is in the reaction of our readers . . . and we'll welcome any comments you'll care to make.

food processing
PUTMAN PUBLISHING COMPANY
111 E. DELAWARE PLACE, CHICAGO 11, ILL.

(Continued from page 63)

sitting, the pull-open flap can be reclosed to protect the cake or pie from foreign matter.

Machine also imprints variety, price, and day codes, if needed, plus other identification such as ingredients, on each carton as fed from stack.

In addition to handling flat cartons for pies, machine will also handle cake boxes up to 4½" high, at rates of around 40/min. Machine is designed to handle up to 125 cartons/min, depending on size and operating conditions.

Open-end window cartons are products of Fibreboard Paper Products Corp., 475 Brannan St., San Francisco

For more information circle 5893 on Reader Service Slip.

Wilcox pie and cake cartoning machine is product of Wilcox Manufacturing Co., P. O. Box 454, Stockton, Calif.

For more information circle 5894 on Reader Service Slip.

Bag-lined box reduces liquid handling costs

Unit increases payload by 40%, cuts personnel by 35%

Uses: For handling, shipping, or storing dairy products and practically all other liquids.

Features: Designed to reduce costs and increase ease of handling. Reports state users can reduce production line personnel by as much as 35% and increase payloads up to 40%. Container eliminates retinning, sanitation, and capital investment problems of metal cans. Cover on box forms a pouring spout.

Description: Lightweight corrugated box with polyethylene bag-liner. Box is self-sealing, requiring no tape, glue, staples, or auxiliary equipment. Adhesive on flaps seals box on the spot with hand pressure. Liner may

(Continued on next page)

Disposable container with polyethylene coating saves money, space, handling time

Polyethylene-coated "Sealkan" is a new product of Sealright Co., Inc.

Frozen eggs were originally packaged in metal cans and required 8 to 24 hours of thawing before they could be used. Now, a disposable fibre container with a protective polyethylene coating makes pre-thawing unnecessary. The eggs are frozen right in the polyethylene coated container. There is no danger of having paper fibres embedded in the product. When ready for use, the container is slit and peeled from the frozen eggs in seconds.

Repeated savings from this improved packaging design are substantial and customer acceptance is overwhelming. It brought a welcome end to the storage, disposability, and return problems of the earlier package.

Improving package efficiency is a sure way to fight the profit squeeze. A protective coating of BAKELITE Brand Polyethylene can equip many packaging materials for better service in handling liquids and solids in bulk and small quantities. For more information, write Dept. AO-64.

It pays to package in

BAKELITE
BRAND
PLASTICS

UNION CARBIDE

BAKELITE COMPANY, *Division of Union Carbide Corporation,* 30 East 42nd Street, New York 17, N. Y.

The terms BAKELITE and UNION CARBIDE are registered trademarks of UCC.

5895 on Reader Service Slip

3M designs the automatic tape applicator...

Now tape puts a punch in cleanser sales

No more punching out the holes in cans of *this* cleanser! Thanks to the right combination of "Scotch" Brand Pressure-Sensitive Tape and dispensing machinery, pre-punched cans are ready to use—just by peeling off the square of tape.

Finding the *right* combination of tape and dispenser is an everyday job for 3M specialists. They work with the world's most complete line of tape and applicators. So whenever *you* have a need for a manual, semi-automatic or automatic dispenser for pressure-sensitive tape, write 3M. If necessary, we'll be happy to design a special dispenser for your needs. And there's no charge or obligation, of course.

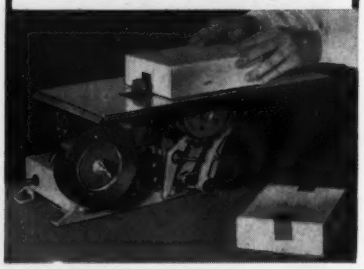
Industry's most complete line of dispensers—for pressure-sensitive tapes trademarked . . .

Reg. U.S. Pat. Off.

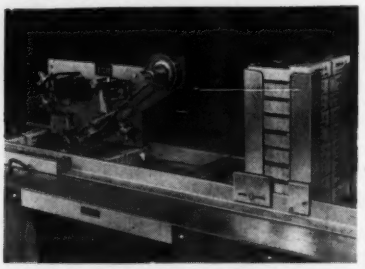
SCOTCH BRAND

The term "Scotch" is a registered trademark of Minnesota Mining and Manufacturing Co., St. Paul 6, Minn. Export Sales Office: 99 Park Avenue, New York 16, N.Y. In Canada: P. O. Box 757, London, Ontario.

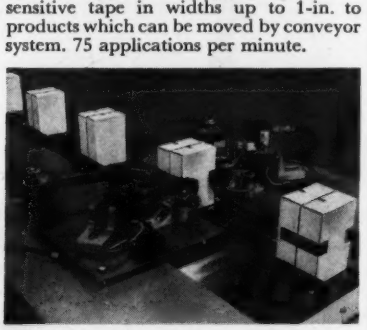
Look what you can do with dispensers!



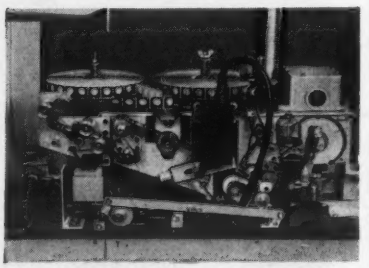
SEAL BOXES quickly, easily with a Motorized Box Sealer. Each of 4 production-type models handle most "Scotch" Brand Pressure-Sensitive Tapes up to 1-in. wide. 75 seals per minute.



TAPE FLAT SURFACES with the S-601 Flat Surface Applicator. Applies pressure-sensitive tape in widths up to 1-in. to products which can be moved by conveyor system. 75 applications per minute.



BUNDLE together two or more packages with either the S-69 or S-692 Combination Bundler. Accommodates most "Scotch" Brand Pressure-Sensitive Tapes in widths up to 2-in. 75 per minute.



APPLY tape in lengths up to 3¾-in. and widths to 1⅜-in. on flat surfaces at speeds up to 300 per minute with this S-603 Pad Applicator. Manual feed or fully automatic conveyor operation.

PRODUCTS OF 3M COMPANY RESEARCH

5896 on Reader Service Slip

(Continued from preceding page)

be heat sealed or tied. Containers are available in graduated sizes to handle varied quantities of ice cream mix, cottage cheese, frozen eggs, and similar products.

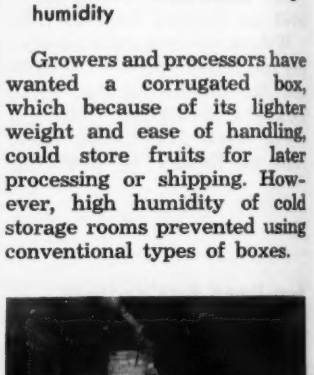
Polyethylene lined box (Dari-tainer) is a development of Growers Container Corp., Salinas, Calif.

For more information circle 5897 on Reader Service Slip.

Corrugated box holds fruit during months of cold storage

Container withstands high humidity

Growers and processors have wanted a corrugated box, which because of its lighter weight and ease of handling, could store fruits for later processing or shipping. However, high humidity of cold storage rooms prevented using conventional types of boxes.



Cold storage room contains corrugated boxes filled with apples

Photo shows a newly designed box which successfully withstood 31°F temperature and 90% relative humidity, stacked ten high for nine months. Even with this heavy, deadweight top load, there were no box failures.

Box is made of specially developed materials for greater humidity resistance.

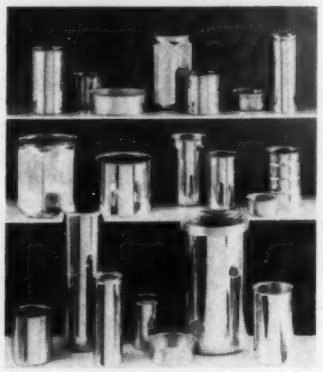
Corrugated apple box for cold storage use is development of Gaylord Container Corp., Div. of Crown Zellerbach Corp., 111 N. Fourth St., St. Louis 2, Missouri.

For more information circle 5898 on Reader Service Slip.

(Continued from page 29)

Kraft Aluminum Containers

Packaging in aluminum containers from this wide variety of sizes and shapes is commercially possible through new manufacturing methods



aluminum virtually eliminates leakage danger. The lighter weight of aluminum offers reduced packaging and shipping costs. Cans have a highly polished surface as they come off the press, thereby eliminating need for further finishing.

They require very little cleaning, are completely rustproof, and can easily be decorated. In the case of Kraft containers, standard lithography processes are used, printing the label directly on the container.

Because of aluminum's high ductility, metal can be worked into many designs and shapes, offering a wide variety of containers for all food processing industries. Kraft's research department is continuing to investigate the possible application of aluminum cans to other food product lines. In the many phases of food processing, aluminum cans may have application for packing dough products (presently being packaged in paperboard containers), meats, fruits, and vegetables.

The set of dies and punch required to produce seamless one-piece aluminum can bodies and bottoms may be easily held in one hand. Compare this to the series of dies and punches, on the table, required for conventional drawing operation. Both methods obtain same results—the seamless 211 x 413 aluminum cans shown

Explore other aluminum processing methods

In addition to the deep draw process, other methods of producing aluminum containers are being developed to expand the possibilities for packaging in this medium. For example, using a shallow draw process, it has been possible to make aluminum cans from coil stock in which one die blank forms, trims, sizes, and flanges in a single operation. These shallow cans, with a depth less than their diameter, offer possibilities for many packaging uses. One use would be for packaging cold cuts of meats sold from refrigerated cases.

Information on development of seamless aluminum cans with bottom in one piece may be obtained from Kaiser Aluminum & Chemical Sales, Inc., 919 N. Michigan Ave., Chicago 11, Illinois.

"We have found
Exact Weight Scales
to be the best . . ."

. . . says A. L. Green, Vice President and General Sales Manager of Jekyll Island Packing Co., Brunswick, Georgia

Mr. Green tells us: "They have given us such good results that we have replaced all other scales with Exact Weight equipment."

Jekyll Island Packing Company has depended entirely on Exact Weight Scales for accurate weighing of all its packages for the past several years, now having no less than 18 units in daily use throughout the plant. The fast-weighing, fast-reading, long life and minimum of maintenance with Exact Weight Scales make them ideally suited for use in food processing.

You'll find Exact Weight Scales in leading food plants throughout the country. Give yourself the same advantages. Write today for full details on the complete line of Exact Weight Scales for food processors.

Model 213 Exact Weight High-speed Production Scale. Requires small counter space; weighs accurately in out-of-level positions; working parts treated to resist corrosion, capacity 3 pounds.

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Exact Weight SCALES

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5899 on Reader Service Slip

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for

INDUSTRIAL WIRE CLOTH

in BULK

or

FABRICATED PARTS

COMPLETE LINE

Nine weaves ranging from the finest to the coarsest, in any metal or alloy.

ACCURATELY WOVEN

Individual loom operation and careful inspection just before shipment assure accurate mesh count and uniform mesh size.

PROMPTLY DELIVERED

Most bulk orders are shipped immediately from stock. If your needs are for less frequently used types, we'll schedule our looms to fill your order without delay.

In fabricating parts . . . filter leaves, strainers, sizing screens . . . we'll work from your prints or draw up prints for your OK.

LET US QUOTE on your next order for wire cloth. Call your Cambridge Field Engineer—he's listed under "Wire Cloth" in the Yellow Pages of your 'phone book or write for FREE 80-PAGE CATALOG and stock list.

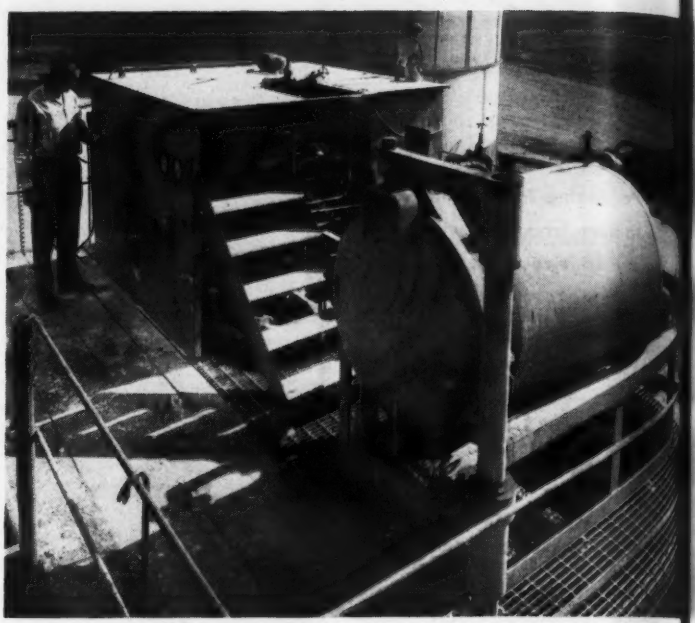
The Cambridge Wire Cloth Co.

WIRE CLOTH | METAL CONVEYOR BELTS | SPECIAL METAL FABRICATIONS

Department H, Cambridge 12, Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

5900 on Reader Service Slip



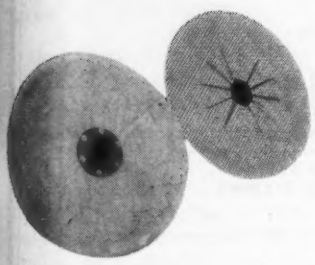
Inexpensive as sand but a thousand times more

- **Semi-automatic diatomaceous unit reduces filtrate solids to 0.002 — 0.006 ppm**
- **Skid-mounted, self-contained — unit can be put in use in few hours**
- **Plastic filter leaves resist corrosion, denting, micro leakage, sliming-over**

New-design, package-type pressure filter produces an effluent containing a maximum of 0.002 to 0.006 ppm suspended solids, in contrast with sand filter effluent which contains from 1 to 20 ppm solids. In addition, the unit occupies only one-fourth the area of a sand filter of like capacity, is completely salvageable and flexible, and involves an annual maintenance cost of only one to two percent of value as against three to eight percent of value for sand filter. Original investment for either type unit is roughly the same for same filtration job.

Package-unit pressure leaf filter system has all plastic-and-fiber glass leaves. Frame for each leaf is fiber glass, over which is stretched a filter surface of woven Saran. The latter furnishes a slick surface, with no tiny projections on which sliming or other flow-impeding build-up can form.

Pressure leaves are rigid, but "give" enough so that they won't dent or permanently deform during handling, installation, or removal. Hub-mounted within the filter



▲ All-plastic filter leaves have fiber glass frame (right) over which is stretched a slick -filter surface of woven Saran

◀ Entire push-button control filter system is mounted on metal skid and ready for operation

filter — efficient

shell, they require no finely adjusted guides, and can be moved in or out without danger of starting leaks in leaves.

Performance proved

In typical installation — handling emulsified oil and suspended clay in oil field brine at Atlantic Refining Company's Huntington Beach, Calif., site — operator visits filter once or twice/day. When pressure reaches certain level, he re-cycles system by push button. Complete backwashing of system followed by precoating takes about 15 min.

Cost of removing by filtration approximately 100 to 150 ppm of suspended solids from brine is around one mil/bbl (42 gal). Effluent contains cited maximum 0.006 ppm suspended solids when medium flow rate filter aid is used in conjunction with asbestos-containing precoat.

(*Continued on next page*)

A message of significance for anyone who buys or uses cans—

Bliss is now designing, building and equipping complete can plants

E. W. Bliss Company has so expanded its facilities and staff that it is now offering *complete* plant-building service to can users and manufacturers.

This "turn-key" plant concept means that we can provide a customer with everything he needs—from a survey of the economic advantage or disadvantage of operating his own plant right up to building it, equipping it, training his personnel, and getting the entire operation underway as smoothly as possible.

We will either take complete responsibility for design and construction, or work with a specialized consulting engineering firm, adding to the consultant's specialized talents Bliss' own personnel, manufacturing facilities, and long familiarity with and experience in the can manufacturing field.

For *users* of cans, the implications of this entirely new service is obvious. And the service is no less meaningful for can *manufacturers:* The regional plant—is it practical, is it economically feasible?

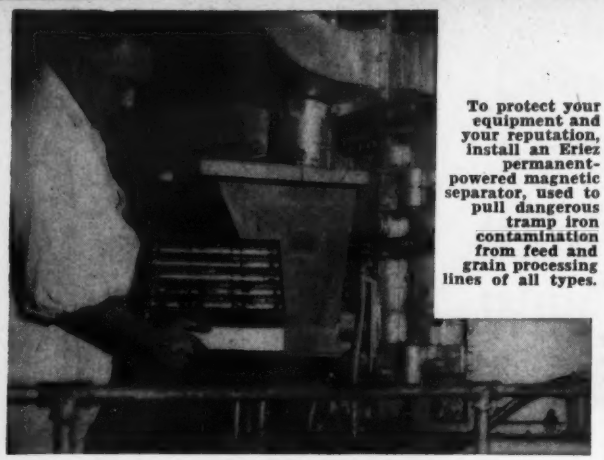
If you're seriously considering moves of this kind, Bliss' new "turn-key" concept deserves your thoughtful consideration. We'll be glad to talk out all the details with you. A number of our executives will be available at Bliss' booth during the Canner's Show, Atlantic City, this coming January. Or if you prefer, drop us a note, and we'll arrange an appointment at your convenience.

Bliss is more than a name... it's a guarantee

BLISS SINCE 1857

E. W. BLISS COMPANY
Can Machinery Division
Canton, Ohio

5901 on Reader Service Slip



To protect your equipment and your reputation, install an Eriez permanent-powered magnetic separator, used to pull dangerous tramp iron contamination from feed and grain processing lines of all types.

Magnetic ideas from ERIEZ

Tramp iron is a killer! Tramp iron in your product can kill cattle and poultry . . . damage your reputation. It can ruin expensive machinery, start fires, cause downtime. Safeguard your investment with one of the many Eriez magnetic separators available to the milling industry. The Eriez Grate Magnet shown here is removing dangerous unwanted iron from a processing line before it can cause damage or contaminate the finished product.

NEW! **Eriez HI-VI *electro-permanent* magnetic vibratory equipment NEEDS NO RECTIFIER . . . operates for less with exclusive "Double Action Drive."**

First electro-permanent magnetic units operating at 3600 CPM directly off an AC line! Just plug in . . . no rectifier needed! Compact, lightweight, easily installed. *HI-VI Unit Vibrators* keep bulk materials flowing freely through bins, chutes, etc., prevent pile-ups and bridging. *HI-VI Vibratory Feeders* (for accurate and automatic feeding) give a liquid-like flow to bulk materials. Alnico V magnetic element, the heart of the units, provides high operating efficiency at low cost. Write for complete HI-VI literature.

Magnetic Pulley—for separating tramp iron from materials conveyed on belts of rubber, canvas, leather, stainless steel or any other non-magnetic substance. Automatically cleans itself of accumulated iron. Belt widths and diameters in varying sizes.

Plate Magnet—powerful, fully enclosed magnetic units, for stationary or hinged installation. Four magnetic strengths, depending on depth of flow of line. Standard sizes from 4" to 72" width, in 2" increments. Special sizes made.

Magnetic Drum—used for spouts, chutes, spiral conveyors, etc. . . . whenever the materials are not conveyed on belts. Works equally well with hot or cold, wet or dry products. Self-cleaning . . . automatically drops tramp iron away from product.

All Eriez Magnets are non-electric, self-contained, easily installed. They operate without any wires or attachments. Magnetic power is guaranteed indefinitely . . . first cost is the last.

FREE LITERATURE on all these magnets mailed on request. Write to: Eriez Mfg. Co., 75 Z Magnet Dr., Erie, Pa.

5902 on Reader Service Slip

(*Continued from preceding page*)

Filter system, complete with panel board and push-button control for backwashing and precoating, is skid mounted and ready for operation as soon as set on floor and pipe and electrical connections made. Self-contained precoat and slurry feed tanks, all pumps, mixers, valves, and controls are included.

Filter shell flares outward toward rear, so that automatic sluicing of filter leaves is facilitated, and all filter aid is washed and drained from shell before precoating cycle is begun. Tanks, piping, and filter shell are of mild steel coated with PittChem's Tarset—a double-coat spray-on epoxy-coal tar protective system. Models in Monel and stainless steel are also available. No plumbing is needed, either for installation or maintenance—all piping is neoprene tubing. Filters are available to handle capacities in a range from 87 gpm to 440 gpm.

Completely automatic units

Completely automatic units also are available. In one Texas operation, a group of these units is visited once every four days to fill the slurry tanks with diatomaceous earth and the precoat tanks with precoat material. Following this, the units run themselves.

When pressure reaches predetermined point (around 100 psi), influent flow automatically stops and backwash cycle begins. As soon as backwash cycle has been completed, precoating system starts. With precoat built, product influent is again started, along with the slurry feed pumps, and filtration starts anew—all automatically.

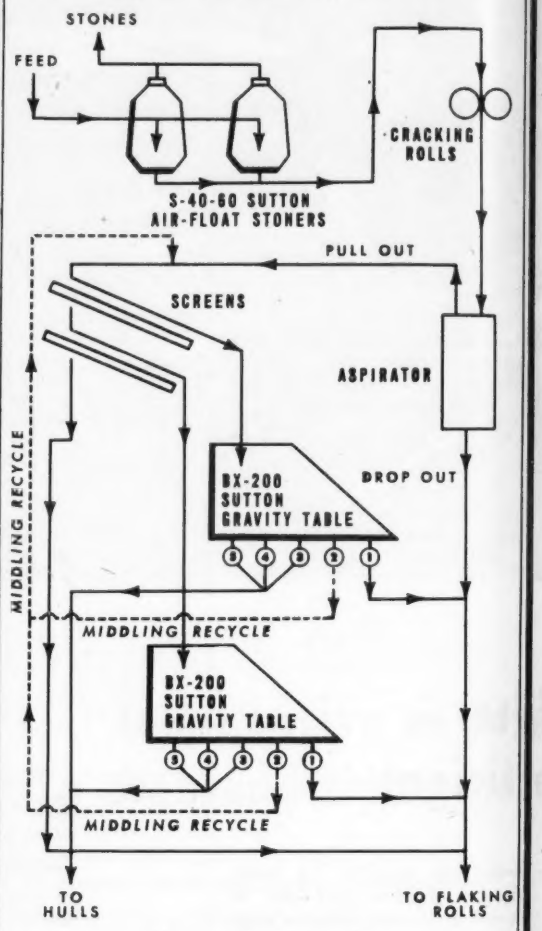
Plastic leaf filter has application potential in food field wherever pressure leaf filters and other types of filters can be used.

Atlas Filtreat portable filter package unit is distributed by Magna Products, Inc., 11808 S. Bloomfield Ave., Santa Fe Springs, Calif.

For more information circle 5903 on Reader Service Slip.

NOW, HERE'S THE PLAN...

For Higher Protein Soy Bean Meal



TYPICAL INSTALLATION

Illustrated above is a factual application of Sutton equipment in modern soy bean processing. Performance data are available upon request.

Write Dept. FP, Sutton, Steele & Steele, Inc., 1031 South Haskell, Dallas 23, Texas.

SUTTON, STEELE & STEELE, INC.

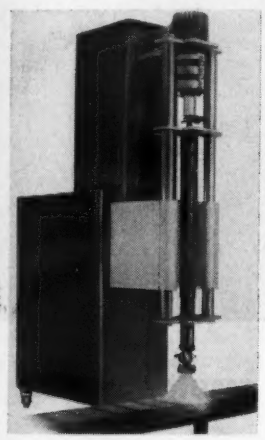
SEPARATIONS

5904 on Reader Service Slip

Irradiates up to 1¼" of material from one side in one pass

Linear accelerator emits electrons, x-rays, or neutrons for lab studies or limited commercial processing

New linear accelerator is designed for radiation investigations in the laboratory, pilot studies, and limited commercial processing. Beam energies to 10 million electron volts permit both deep and uniform irradiation. For moderate penetration or surface treatment, beam energy can be reduced to 2 mev.



Accelerator unit is only 12' high, weighs less than 6000 lb

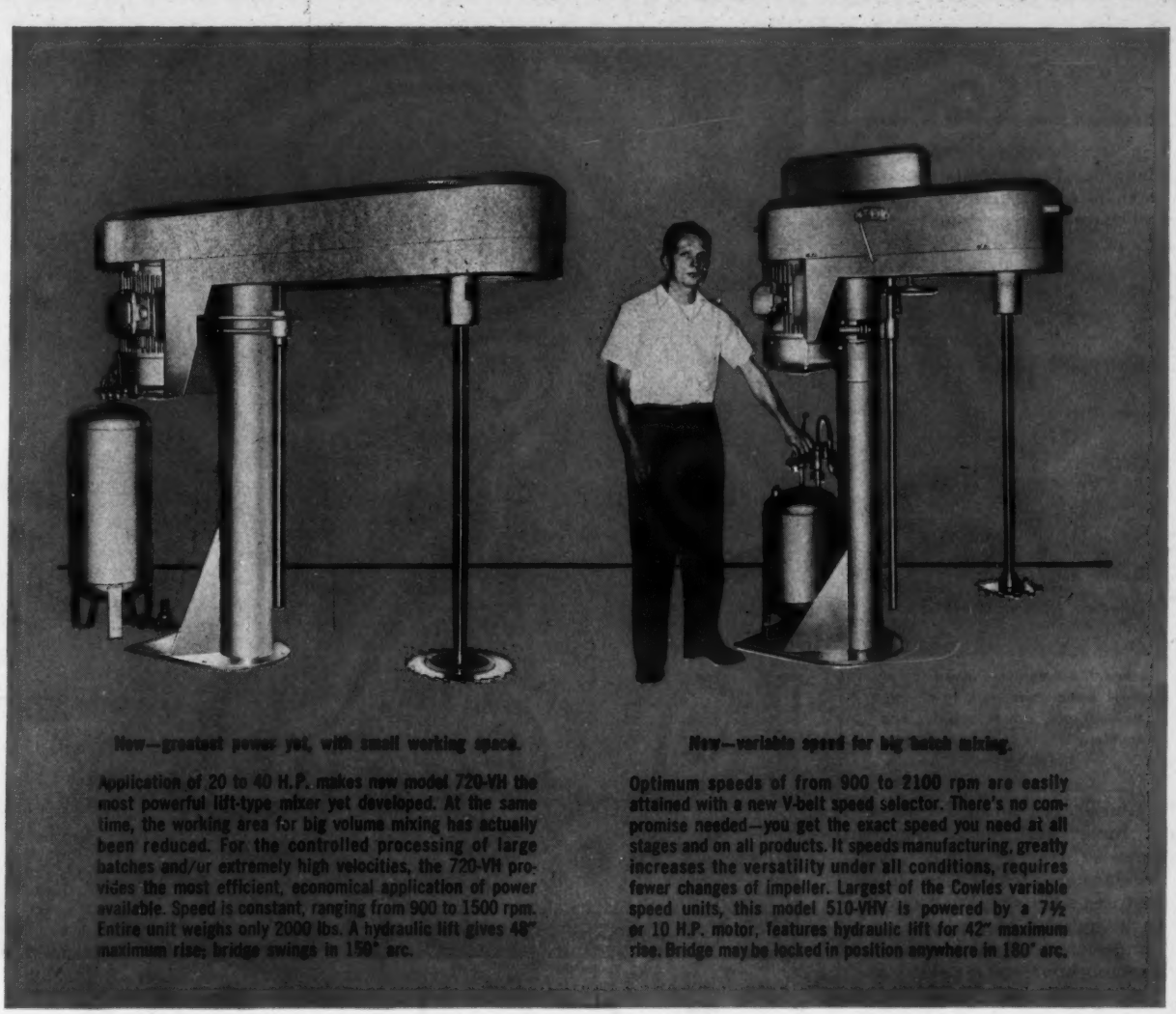
For studies on varied types of radiation, variable dose rates, and variable beam energies, versatile machine can easily be converted to producing x-rays or neutrons.

Electron beams can be magnetically scanned to cover large or small area. Because beams can be reproduced day-after-day, exact experimental conditions are maintained. With beam efficiency of 67 percent, and operating at 4 kw, unit can process 2000 megarad lb/hr—important for study of pilot plant processes.

Inexpensive installation, simplified maintenance

Unit can be operated for approximately $10/hr. Installa-

(*Continued on next page*)



New—greatest power yet, with small working space.

Application of 20 to 40 H.P. makes new model 720-VH the most powerful lift-type mixer yet developed. At the same time, the working area for big volume mixing has actually been reduced. For the controlled processing of large batches and/or extremely high velocities, the 720-VH provides the most efficient, economical application of power available. Speed is constant, ranging from 900 to 1500 rpm. Entire unit weighs only 2000 lbs. A hydraulic lift gives 48" maximum rise; bridge swings in 150° arc.

New—variable speed for big batch mixing.

Optimum speeds of from 900 to 2100 rpm are easily attained with a new V-belt speed selector. There's no compromise needed—you get the exact speed you need at all stages and on all products. It speeds manufacturing, greatly increases the versatility under all conditions, requires fewer changes of impeller. Largest of the Cowles variable speed units, this model 510-VHV is powered by a 7½ or 10 H.P. motor, features hydraulic lift for 42" maximum rise. Bridge may be locked in position anywhere in 180° arc.

Cowles develops two new multi-phase* mixers for faster big-volume production

***What is Cowles "multi-phase" mixing?**

Cowles exclusive mixing principle is based on the unique action of the patented Cowles Impeller. Where ordinary mixers do a partial job by imparting random motion to particles in suspension, the Cowles takes material through several extra phases: Material is thrown off at 60 mph speed from impeller vanes. This creates violent action of the suspension against itself—a zone of "hydraulic attrition" in which particle is sheared and smashed against particle to accomplish truly ultimate dispersion. Direct action of the impeller is thus multiplied many times. At the same time, the entire batch is kept in "total motion", returning to the impeller in a controlled cycle. Result is a speed, thoroughness and predictability unmatched by other methods. Scientific details on request.

THE COWLES PRODUCTION RECORDS of up to 20 times faster ultimate dispersion have brought the inevitable result: user demands for ever larger and more versatile units. And here are the Cowles answers. They are proved for up to 2½ times the per-hour volume you may be used to. On any liquid-base mixing, dispersing, deagglomerating, homogenizing or emulsifying job, the Cowles promises not only greater speed and simplicity, but lower space, power and maintenance requirements.

The Cowles enjoys the fastest growing popularity in its field.

To find out how the most modern mixing methods can benefit your operation, let us prove the Cowles in your plant—at our risk! Write today on your letterhead for complete details.

MOREHOUSE® COWLES®

5716

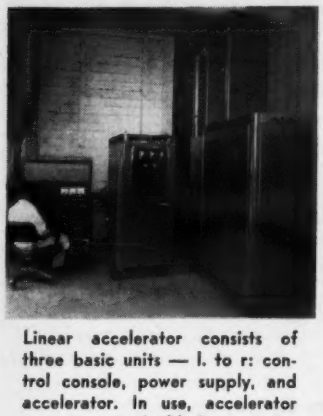
Morehouse-Cowles, Inc.
1150 San Fernando Rd.
Los Angeles 65, Calif.

Representatives in principal cities
Convenient lease and time payment plans

5905 on Reader Service Slip

(Continued from preceding page)

tion is relatively inexpensive. Manufacturer suggests rock or earth-filled bunkers erected in existing, ground-supported manufacturing or research space to allow integration with existing production lines or laboratories.



Linear accelerator consists of three basic units — l. to r: control console, power supply, and accelerator. In use, accelerator is shielded

Linear accelerator consists of three basic units: control console, power supply, and accelerator. Accelerator unit features such simplified design as integration of klystron and accelerating waveguide in one vacuum envelope — eliminating the separate electron gun as well as ceramic rf windows. Accelerator unit is 12′ high, weighs less than 6000 lb.

Mark 1-F4 Electron Linear Accelerator, developed by Applied Radiation Corp., Walnut Creek, Calif., is described and illustrated in brochure available from the company.

For more information circle 5906 on Reader Service Slip.

Canning brainstormer — "split-salt" method

Strictly in the brainstorming stage so far is an idea advanced this spring at Institute of Food Technologists national meeting. The idea, given by Dr. Robert V. Morse, a consultant of Ithaca, N. Y., is called the Rahn split-salt method

Hypothesis is that low-acid vegetables can be canned in boiling water rather than by

"Styrofoam® saved us approximately 8% on our insulation bill at Little Rock"—Kroger Company

"Styrofoam saved us approximately 8% on our insulation bill for our warehouse in Little Rock, Arkansas," reports Lee J. Gibbas, Kroger mechanical engineer. "In addition, it also maintains the required temperatures which preserve the various foods stored in our coolers and freezers.

"About 250,000 board feet of Styrofoam are also being used in the new Kroger plant under construction in Shreveport, Louisiana. Seven banana-ripening rooms, an egg cooler, a cheese cooler, two produce coolers and three freezer rooms will all be insulated with Styrofoam."

Mr. Gibbas speaks from experience. Kroger first used Styrofoam for insulation 4 years ago. For more information about this outstanding insulation, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Department PL1709F.

CHECK THIS EXCLUSIVE COMBINATION OF PROPERTIES

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B	•			•			•	
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Vancouver, B. C.: Wiley-Bayley Dist., Ltd.

THE DOW CHEMICAL COMPANY
Midland, Michigan

pressure cooking, by adding hydrochloric acid to product. Can is sealed, cooked at atmospheric pressure. Then sodium hydroxide is introduced and can is resealed. The two compounds react to form sodium chloride in the amount needed to furnish normal salt requirement for the product.

A big deterrent to acidifying canned foods (a method used commercially for figs, pimentos, artichoke hearts) is the acid taste, which makes most products objectionable when so treated. "Split-salt" method is intended to eliminate this.

As applied to ordinary vegetables such as peas and beans, the method is a variant of the "lemon juice" process described by W. V. Cruess in his *Commercial Fruit and Vegetable Products*, who found that "The canned vegetables possess the full fresh vegetable flavor and are superior in flavor to the same materials sterilized under pressure in the usual manner." The split-salt method uses a mild hydrochloric solution of about the same acidity as the old method with lemon juice to similarly reduce the pH so as to permit atmospheric canning.

Need automatic process for commercial scale use

Results of the split-salt method as regards texture, quality, color, and flavor can easily be tested in any laboratory with ordinary equipment, using glass flasks. The technical problems as applied to *commercial* canning principally center around the last step — introducing the NaOH after sterilization is completed. It has been suggested that the automatic machines now used in the evaporated milk industry might be used for that purpose. These punch a hole in a metal can, inject the fluid through a hollow needle, and solder the hole, operating aseptically at high speed. However, the split-salt method has not progressed beyond the laboratory stage.

Readers interested in securing more information should contact Robert V. Morse Research Laboratory, 521 Wyckoff Road, Ithaca, New York. ◀

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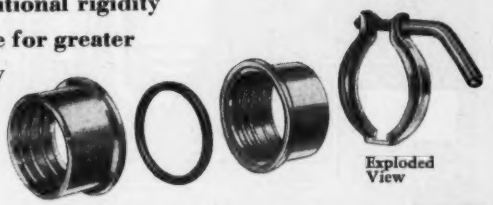
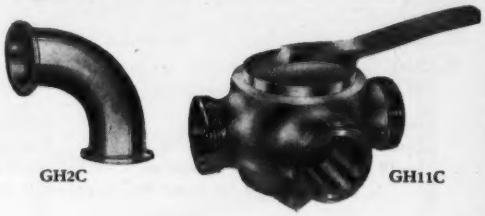


Exploded View



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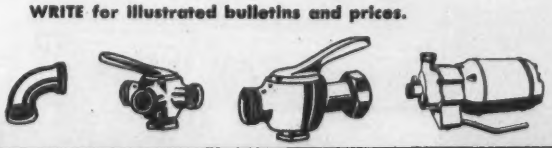

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5908 on Reader Service Slip

How push-button cleaning of evaporators pays off

Here's how to halve evaporator downtime halve labor, and increase efficiency

E. H. FULTS, Western Div. Mgr.
Bonewitz Chemicals, Inc.
and **KARL ROBE,** Associate Editor

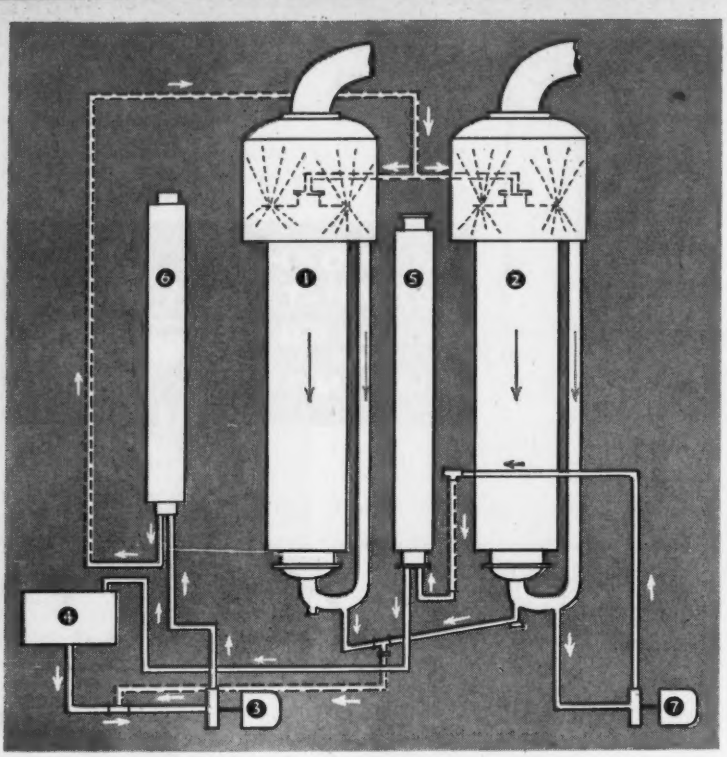


Diagram of CIP push-button cleaning system. Arrows show flow of cleaning solution. Dashed lines are pipes added for CIP system.

1—First effect
2—Second effect
3—10 hp pump for CIP operation
4—Surge tank (holds 200 gal)
5—Inter-stage heater
6—High temperature heater
7—3 hp pump for evaporating operation

Fig. 1 Rotary spray head in evaporator dome — this is removed during evaporating cycle. White lines trace piping added for push-botton cleaning

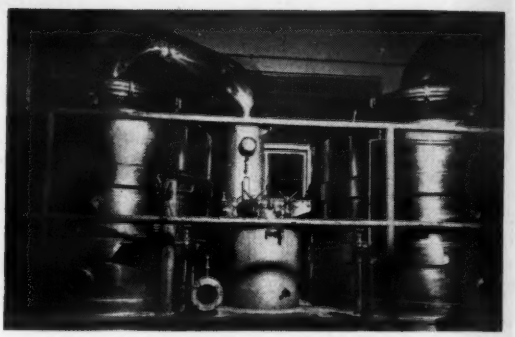
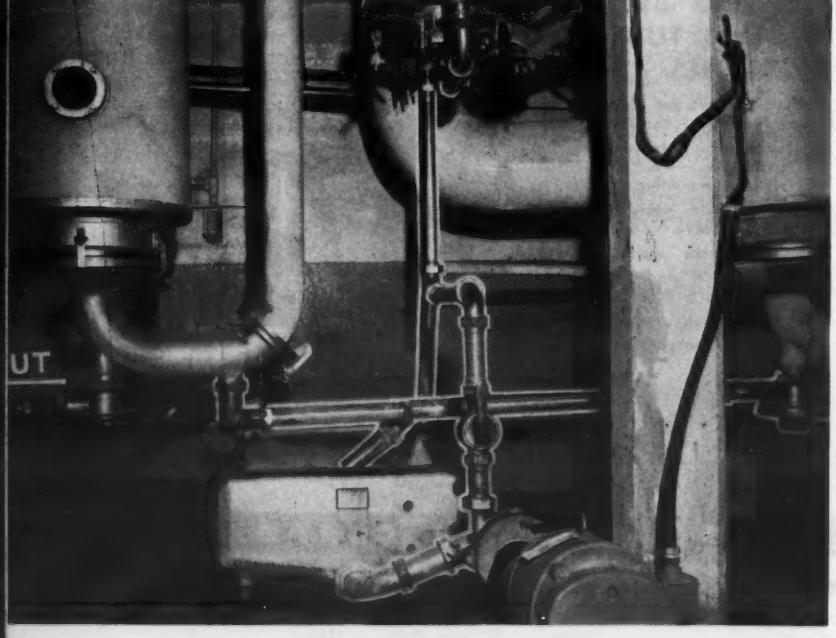


Fig. 2 Top of double effect milk evaporator

Fig. 3 Bottom of evaporator. At completion of cleaning, valve marked "out" is opened and solution discharged to sewer. Vertical white-traced line takes solution from surge tank to inter-stage heater shown at top in photo



Complex construction required by modern, high-efficiency vacuum pans and multiple-effect evaporators means that more attention — and more labor — is needed properly to clean all interior surfaces. Cleaned-in-place piping arrangements have been generally adopted for other cleaning jobs — particularly by the dairy industry. This general adoption was preceded by several years of investigation, followed by actual in-plant experience. Cleaned-in-place systems for evaporators have similarly undergone various trials.

Some plants have operated successful systems for several years. A backlog of experience has been built up, both within individual food processing firms and outside suppliers, so that there is now available considerable help for planning such systems.

Here is a brief photo-diagram description for cleaning of a typical big double-effect evaporator, based on original development work by Producers Creamery Co., Springfield, Mo.

How to convert existing evaporator to push-button cleaning

First step in installing "push-button" cleaning is to add piping system for jet sprays. Fig. 2 shows top of two effects, and Fig. 3 shows bottom of these same effects. Details of actual installation are shown and described in photos and captions, with all added piping outlined in white.

An important consideration to those contemplating such an installation: make sure that pump capacity recirculation of the cleaning solution is large enough to take care of the big pressure drop inside the evaporator system.

Editor's note: This article is the first of three articles on push-button cleaning of evaporators. We discussed its preparation with Producers Creamery Company, Springfield, Mo., a pioneer in this method of cleaning. E. J. Baldi, Production Manager stated "... we feel that for your article, it would probably be best to contact the Bonewitz Chemical Company. I am sure this firm can give you the help you need on cleaning of evaporators, based on all the development work we did, plus their widespread experience over the past two years on various types of installations. It might be well to point out that the original patents, although they were held by our Company, were turned over to the Bonewitz people."

—Editor

How CIP system operates

At end of a production run, the vacuum is broken, and milk pumped out of evaporators. Pump is connected to inter-stage heater, and by-pass is connected to high temp heater. Milk inlet line is closed, and line connected to spray head. This line conducts cleaning solution from outlet of high temp heater to the rotating spray heads in evaporator dome.

Going to top of evaporator, operator opens the dome and removes the umbrellas. These are sponged and set in dome beside tube nest as shown in Fig. 1. Spray heads are then installed as shown.

System is flushed with clear water, discharged into sewer. Outlet valves are then closed, and surge tank is filled with detergent solution. This is circulated through high-temp heat exchanger. When hot (190-200°F range), valve is opened and solution goes to spray heads in evaporator dome. Solution drains through tubes to tube nest at bottom, then into surge tank for recirculation.

At end of hour, heat is turned off and sewer outlet opened to drain off detergent solution. System is flushed with fresh water, followed by

(*Continued on next page*)

when you count
what contaminated meat
costs you

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Exceptional corrosion resistance explains these valuable properties. In fact, no meat, no matter what corrosive acids it contains, can break down the smooth shiny surface of Crucible Stainless Steel. It effectively eliminates the corroded crevices that catch food and give contamination a start. It's easy to see why Crucible Stainless so often cuts down costly product waste.

Cleaning is economical too, with Crucible Stainless. It cleans 5 times faster than any other metal in commercial use today, and it comes clean so thoroughly that stainless equipment can be used on many jobs because flavor never transfers from one product to another.

Corrosion resistance and easy cleaning are just two of many properties of Crucible Stainless which make it, in the long run, the economical choice for meat packing equipment. For more information, write for free 24-page booklet discussing the use of Stainless Steel in the meat packing industry, or contact *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

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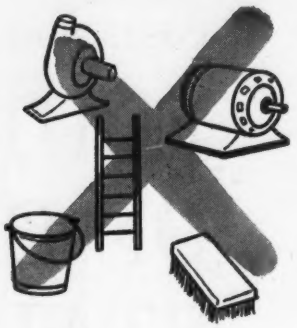

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Not only faster, but better, too, because the cleansing jet-stream from the Oakite SANISEPTOR can reach places where brushes and mops can't – way up, behind and under equipment, in narrow crevices and tight corners.

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(*Continued from preceding page*)

a solution which contains milk stone remover. This solution is circulated for 30 minutes through heater set at 160°F. This is followed by another fresh water rinse. Evaporator is then cleaned, ready for operation, after CIP (clean-in-place) system is by-passed and the spray heads are removed.

Entire cycle takes about two hours, and part time of one man during this period.

Choice of spray jets

Each installation for converting existing evaporators and vacuum pans to CIP is somewhat different, because of variations in sizes of pans and domes, in pump pressures and internal friction, etc. Direction and angle of spray heads should be placed on basis of experience — then after installation checked to see that coverage is complete. Spray heads and deflector combinations which spread a cone-shaped spray are available for angles of 30, 45, 60, 75, and 80° coverage.

The spray cleaning connections are permanently welded into tube-shells and evaporator side-walls. Cleaning connections are capped on inside of evaporators or equipped with compression valves closed during production runs. These connections can be installed at time evaporator is built, if specified by the buyer.

What value CIP evaporator cleaning?

Labor cost: Practically all manual cleaning inside the evaporator is eliminated.

Power, Fuel: Entire evaporator head load is idle except for heat needed to bring cleaning solution to temperature and maintain it. Evaporator itself is idle during clean-up, with zero fuel requirement.

Water: No water is needed to operate condenser, since cleaning takes place at atmospheric pressure.

Time: Down-time may be reduced to one half in some

(*Continued on page* 82)

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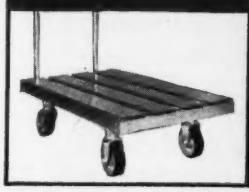

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Rollers apply oil film to each side of top chain simultaneously. Hinged independently, rollers always maintain same pressure, even though chain sways in operation. A lever controls roller contact. Solenoid valve starts and stops flow of oil. Needle valves control flow to each side of chain when solenoid is open.

Freiman oiler is made by Olsen Mfg. Co., 638 S. Rochester Rd., Clawson, Mich.

For more information circle 5912 on Reader Service Slip.

For more information on product at right, circle 5913 see information request blank opposite last page.

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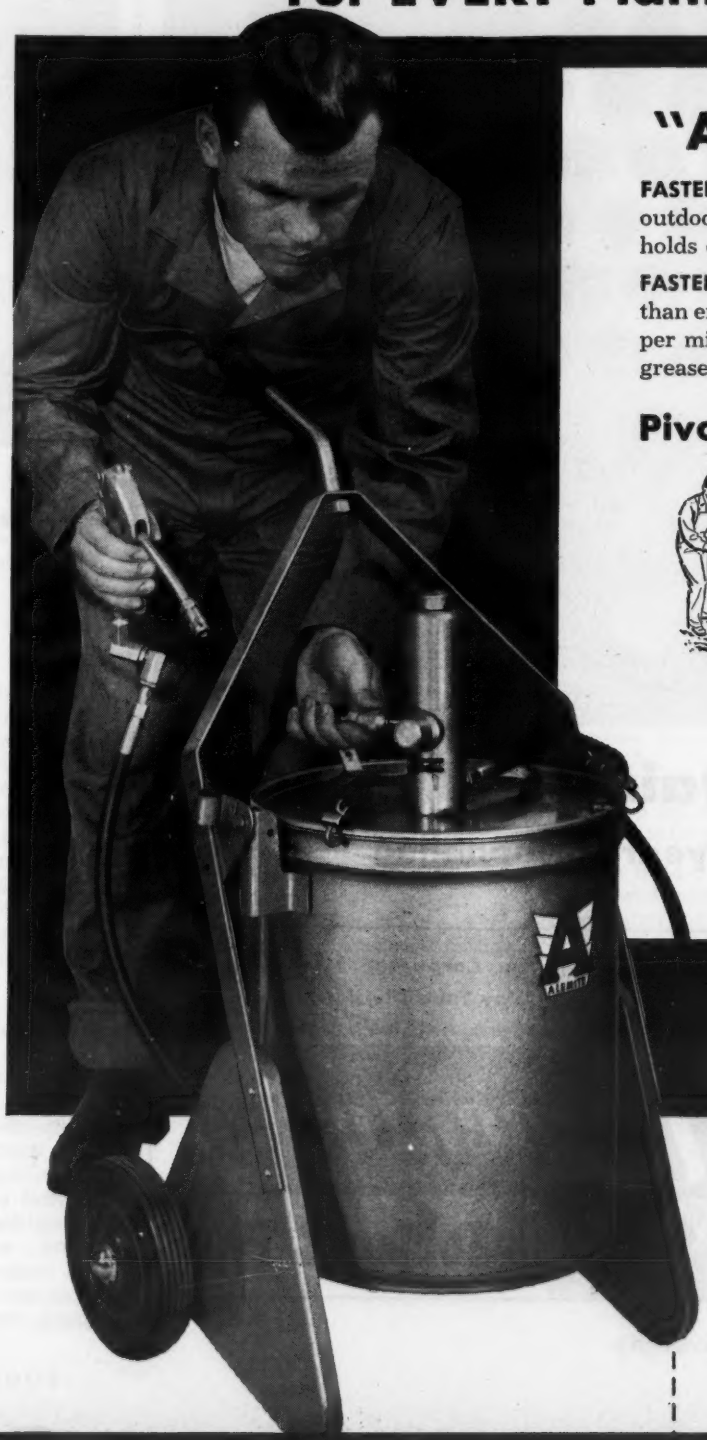

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FASTER—because exclusive, newly designed pump packs more than enough power for every job. Delivers 14½ oz. of gun grease per minute at 70°F. Holds 25-, 35-, or 50-lb. pail—or 70 lbs. of grease. Dynamic primer assures positive priming.

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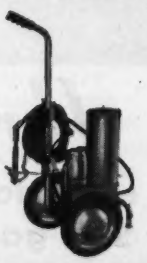

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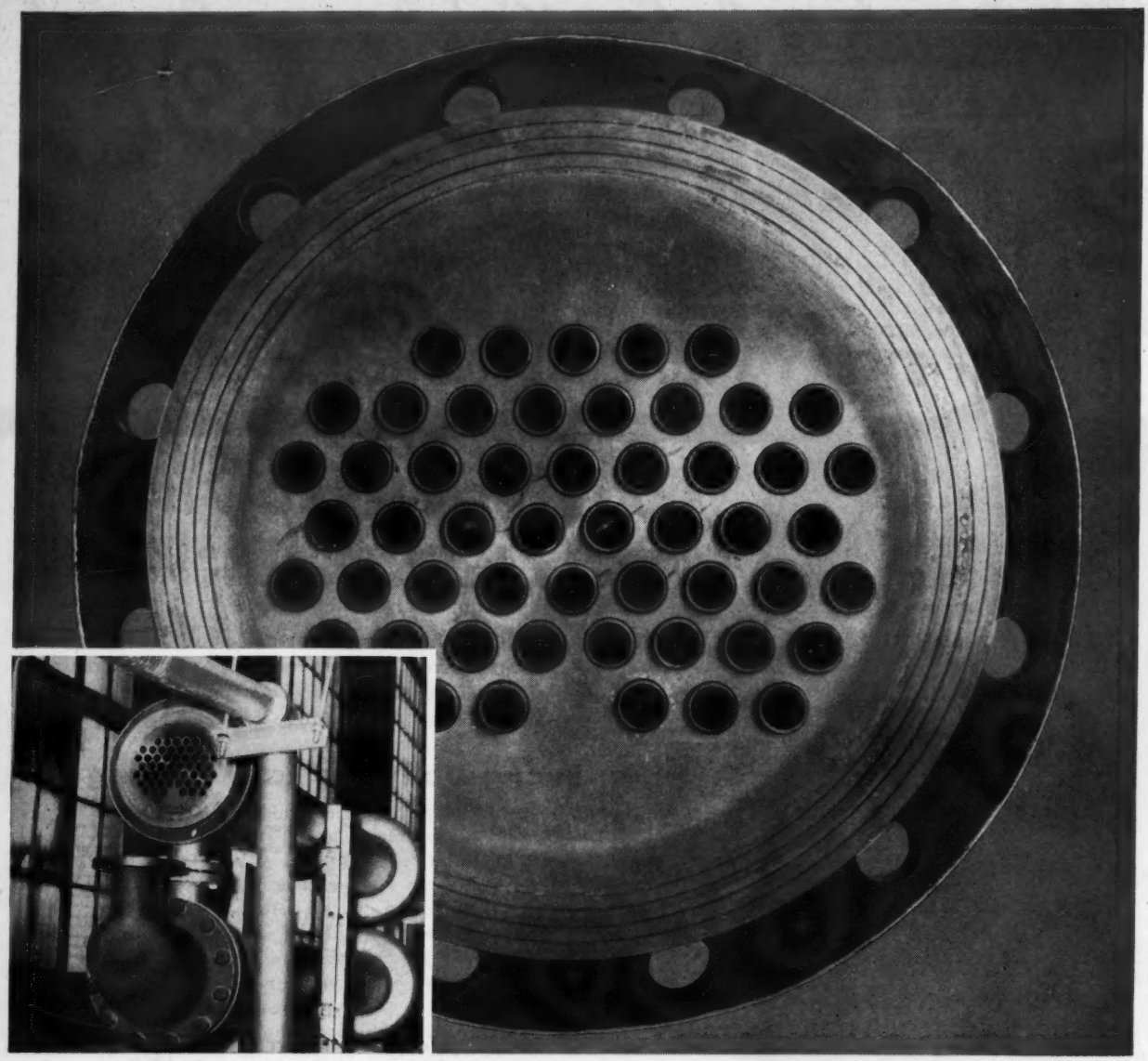

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Rebuild citrus wide-span steel

Snively Groves citrus plant can withstand winds of hurricane velocity

During 1950, when fire destroyed all but the orange juice concentrate plant of Snively Groves citrus operations in Winter Haven, Fla., John A. Snively decided to rebuild facilities destroyed, and modernize the entire operation. Basic construction unit decided upon for the new plant was wide-span steel buildings.

Initial rebuilding began with the canning operations, where an intermediate type construction was used. Here, the framing and roof are of standard steel construction, while sidewall construction is of concrete.

The first major unit to use all-steel construction was the sectionizing plant for processing sectioned grapefruit and oranges. Continuing to carry out the plan, a warehouse, the largest of its kind

plant with buildings

Aerial view of Snively Groves citrus processing operation shows warehouse in left foreground. This is one of the largest buildings of its kind using all-steel construction

using all-steel construction, was built in 1954. The building, having two 100-ft spans, is 200 x 600 ft . . . 120,000 sq ft under one roof. Packed 24 cans to a case, 2,000,000 cases of juice can be stored here. Height of building is 24′ to the eaves, allowing 4-high stacking of pallet loads by means of lift trucks. Building is completely insulated with 1½″ fiberglass.

In 1955, four more all-steel buildings were added to the plant. These included a canning plant addition, 40′ x 150′ x 20′; a canning plant extension, 60′ x 60′ x 20′; a feed mill unit extension, 70′ x 140′ x 36′.

Both the walls and roof of the plant for the affiliate firm are covered with aluminum-coated sheet steel. The extra height on the feed mill extension unit was necessary

(*Continued on next page*)

THE BEST WAY TO PIPE PROCESSED MILK AND MILK PRODUCTS FROM

is through TYGON B44-4

The Tygon B 44-4 story complete with technical data is yours for the asking. Send for Bulletin T-90 today.

The Meadowbrook Dairy of Erie, Pa. uses Tygon B 44-4 Flexible Plastic Milk Hose in a number of different applications. One ten foot length, however, is kept as a utility hose for use when and wherever needed. For example — in the illustration above, it is transporting buttermilk from processing to storage tanks. When this operation is finished, the tubing will be detached, cleaned and ready for the next job . . . in a matter of minutes! John Griffith, Meadowbrook employee, uses it for a variety of tasks. He believes that it can't be matched for speed, utility and safety when the job is piping processed milk or milk products "from here to there" anywhere in the plant.

Tygon B 44-4 was developed for the specific purpose of conveying processed milk and milk products and provides several advantages over other types of milk piping. Since it is extremely flexible, it adapts to any layout, can be used in long runs without expensive extra joints or fittings. Its transparent, glass-like clarity permits personnel to inspect visually contents at any point. And last but by no means least, it is absolutely odorless and non-toxic — cannot impart odor nor flavor taint to even the most susceptible milk products — and is unaffected by all food acids and commercial cleaners in common use.

Compare these advantages with any other milk piping medium and, if you are not already a user of Tygon B 44-4, learn how this versatile product can benefit your operation.

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Best by test for this heavy, sticky emulsion —Crane diaphragm valves

What valve is best and lasts longest in this service? A West Coast emulsified asphalt producer tried them all on the manifold above and here's what was found.

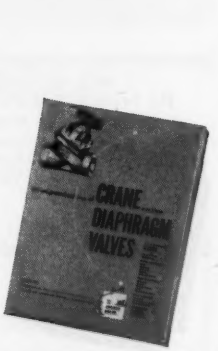
Conventional valves would become inoperative in a short time. The main trouble was binding of the stem in contact with the cold, heavy asphalt emulsion.

Ordinary diaphragm valves on the same service lasted only two months and had to be replaced. The diaphragms didn't stand up and the high torque required for closure was impractical for frequent operation.

Three years ago the plant started using Crane No. 1610 Packless Diaphragm Valves. The neoprene diaphragm functions only to seal the bonnet. It is not subject to crushing and excessive wear as a seating member. The separate disc in combination with Crane Y-pattern body makes positive closure with minimum torque and turns. These valves are giving full satisfaction.

Literature on Request

Wide choice of body and diaphragm materials makes these exclusive Crane valves particularly useful to process industries. Ask your Crane Representative for Circular AD-1942, or write to address below.



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(*Continued from preceding page*)

to provide enough headroom over driers and other processing machinery.

Wide-span steel structures are built by Armco Drainage & Metal Products, Inc., Middletown, Ohio.

For more information circle 5917 on Reader Service Slip.

Push Button Cleaning

(*Continued from page* 78)

cases. There is no delay in waiting for vacuum to be pulled. Operating efficiency is increased by having completely cleaned heat exchange surfaces.

Cleaning compounds for CIP systems

Specific formulations of cleaning agents have been developed. Cleaning compound used as described above utilizes chelated caustics with wetting agent in formulation. Low-foaming, removal of baked-on deposits by chemical action, and riseability are properties necessary for such compounds. Milkstone remover is high concentration type made for this purpose.

Less cleaning compound is needed to maintain high concentration, because of the low volume of water used.

Similar spray-cleaning units are available for use in hot wells (product-holding tanks) and bulk liquid tanks of all types. Spray units for cleaning tank trucks are also available.

Extensively used for concentrating milk, although not at Producers Creamery Co., evaporator shown on previous pages is built by the Henszey Co., Watertown, Wis.

Bonewitz Vacspray unit, CIP detergent, and milkstone remover, are developments of Bonewitz Chemicals, Inc., P.O. Box 560, Burlington, Iowa.

For more information circle 5918 on Reader Service Slip.

In January look for second article on push button cleaning of evaporators.

Makes "cold" doors clear at bottom, seal at top

Securing adequate clearance at bottom and tight seal at top of sliding cold storage doors frequently poses a problem. Now, a new device lifts the door before it slides open, or automatically lowers it to floor, forming a tight seal, after closed position has been reached. Used in connection with the manufacturer's special door operator, the device embodies track arrangement permitting lowering and sealing action. No manual operation is involved.

Reserve power of the door operator is adequate to handle this additional feature.

Air-Lec door operators and lifting-sealing device are available from Schoelkopf Mfg. Co., 320 N. 3rd St., Madison, Wisconsin.

For more information circle 5919 on Reader Service Slip.

Hammer blows don't crack equipment's tough surface

Coating resists chemicals injurious to steel

A line of drums, tubs, table tops, and trucks features an extremely durable, easily cleaned surface, not requiring the scrubbing often necessary in connection with galvanized or tin areas.

Basic material has been used for some years as a sprayed-on coating for beer vats, and has manifested resistance to various materials that are injurious to steel. In this application, the coating has not, of course, been subjected to hard wear or impact. After experiment, it was found that application of multiple coats—up to 5, with each one being baked at high temperature—provided a surface that would resist hammer blows without cracking or chipping.

Equipment with Schmidt-Lastiglas surfaces is available from The C. Schmidt Co., 1712 John St., Cincinnati 14, Ohio.

For more information circle 5920 on Reader Service Slip.

"We should've had this stuff on the ramp years ago."

Flooring of ramp is A.W. ALGRIP—world's only abrasive rolled steel floor plate—and today's safety record tells the ALGRIP story.

ALGRIP provides super-safe footing under the *most hazardous* slipping conditions—on flat or *inclined* surfaces. It's made by a patented process in which a grinding-wheel type abrasive is rolled—*not coated*—to a controlled depth as an integral part of tough steel plate. Usage merely exposes more non-slip abrasive surface.

To eliminate accidents on ramps, loading docks and wherever slipping hazards exist in your plant, specify A.W. ALGRIP. Make a test installation. Use ALGRIP as an overlay or as independent flooring. It fabricates easily, requires no maintenance and will soon pay for itself in reduced accident and insurance rates.

ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

ALGRIP—*approved for safety by Underwriters' Laboratories*

ALAN WOOD STEEL COMPANY
Conshohocken, Pa.

Please send A.W. ALGRIP Booklet AL-S22

Name_____

Title_____

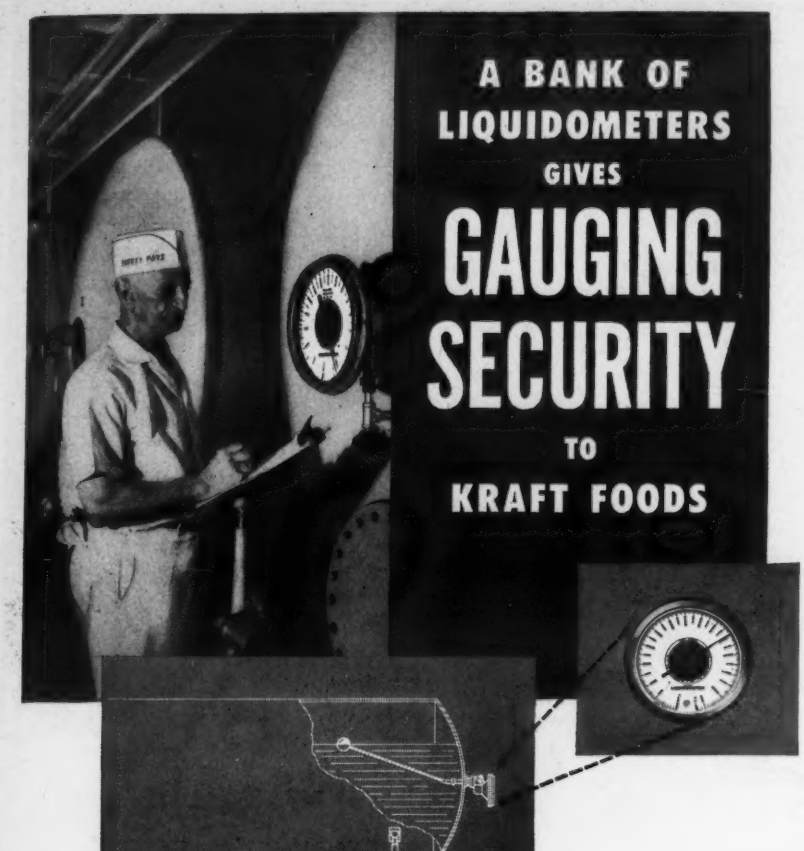
Company_____

Address_____

City_____ Zone_____ State_____

OTHER PRODUCTS: A.W SUPER-DIAMOND rolled steel floor plate—Plates—Hot and cold rolled sheet and strip—(Alloy and Special Grades)

5921 on Reader Service Slip



A BANK OF LIQUIDOMETERS GIVES

GAUGING SECURITY

TO KRAFT FOODS

At the Kraft Foods plant in Hillside, N. J., Liquidometer gauges supply an accurate, reliable measure of vegetable oils which are fed into the Kraft food processing system.

The gauges used by Kraft are 12" direct readers. Their function: gauging the contents of the 24 tanks in which Kraft stores vegetable oils at 100-120 degrees F. The slightest change in liquid level is instantly and automatically transmitted to a large, easy-to-read dial. Inventories are accurately maintained with a minimum of effort.

Liquidometer direct readers are available with automatic warning signals where certain liquid levels are critical. Dependability, low maintenance, high readability, safety and ease of installation ideally suit Liquidometers for every liquid gauging need.

A variety of dial type Liquidometer gauges are available for direct and remote indication. For complete details write Dept. G for Bulletin 463.

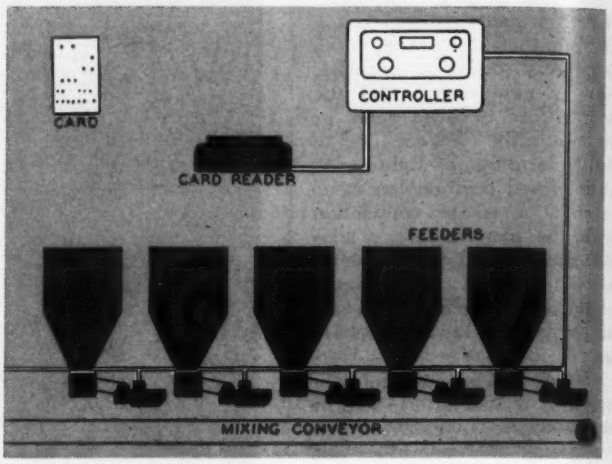
LIQUIDOMETER INSTRUMENTS

Liquids worth storing are worth measuring.

THE LIQUIDOMETER CORP.

SKILLMAN AVENUE AT 36TH STREET, LONG ISLAND CITY 1, N.Y.

5922 on Reader Service Slip



As indicated in drawing, a controller is added when using a volumetric system where "trim adjustments" are needed to modify feed rates slightly to compensate for variation in component densities

low-cost punch card formula control

Installed and maintained by plant personnel

System may be used for either liquids or solids, providing accuracy to 0.1% without use of a single electronic component

A new system greatly reduces set-up time for plants producing products having a variety of formulae. Through use of a punch card, product uniformity from one run to another is assured. First cost is low, and system may be installed and maintained by plant personnel familiar with conventional electrical and mechanical equipment. Accuracies are not affected by variations in line voltage, and there are no components which have aging effects.

High accuracy formula control is provided for continuous flow blending of feeds, flours, oils, and many other products. Control system provides precision control, but is extremely simple in operation. Only card reader and feeder or pump drive, with their control actuators, are needed for most applications. Although a controller is shown in drawing, it is not needed unless other special control functions are called for.

System can provide formula accuracies of one-tenth of one percent without use of a single electronic component. Control simplicity is obtained through use of a binary digital system. Card reader senses binary codes, and feeder drive operators include a built-in,

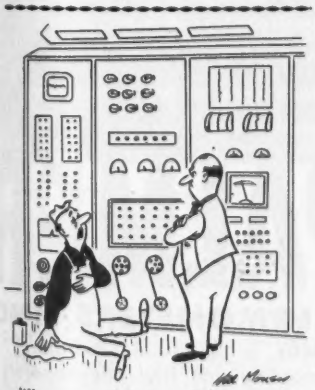
electro-mechanical, flip-flop follow-up device

A formula card is punched for each multi-component formula that will be run. Cards are punched on a simple, mechanical, direct reading card punch. To punch card, the desired percentage (or rate of feed) for the first component is set in on punch counter. Card is then indexed, and desired value for next component is set in on counter. A formula card for 35 components may be prepared in less than two minutes.

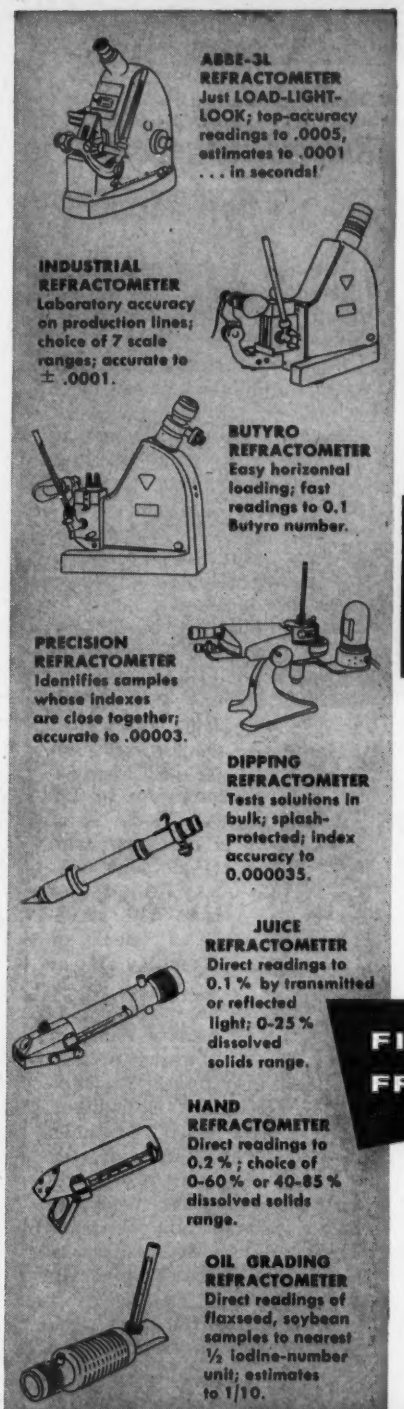
When desired formula is to be run, card is inserted in reader. Reader simultaneously sets desired feed rates of all components, and system is ready to run. After desired quantity of a particular formula is produced, card is removed from reader and stored for future use. Drawing shows a series of variable speed drives connected to feeders designed to handle dry chemicals, flours, grains, etc. Each feeder is synchronized with conveyor so as to maintain the proper blend on conveyor at all times. If it is desirable to include provisions for automatic stopping and starting of blending system and programmed sequence of starting each individual component, a timer and relays are added to system.

Punch card control system was developed by Graham Transmissions, Inc., Menomonee Falls, Wisconsin.

For more information circle 5923 on Reader Service Slip.



"I'm pooped from polishing push buttons."


ABBE-3L REFRACTOMETER
Just LOAD-LIGHT-LOOK; top-accuracy readings to .0005, estimates to .0001 . . . in seconds!
INDUSTRIAL REFRACTOMETER
Laboratory accuracy on production lines; choice of 7 scale ranges; accurate to ± .0001.
BUTYRO REFRACTOMETER
Easy horizontal loading; fast readings to 0.1 Butyro number.
PRECISION REFRACTOMETER
Identifies samples whose indexes are close together; accurate to .00003.
DIPPING REFRACTOMETER
Tests solutions in bulk; splash-protected; index accuracy to 0.000035.
JUICE REFRACTOMETER
Direct readings to 0.1 % by transmitted or reflected light; 0-25 % dissolved solids range.
HAND REFRACTOMETER
Direct readings to 0.2 %; choice of 0-60 % or 40-85 % dissolved solids range.
OIL GRADING REFRACTOMETER
Direct readings of flaxseed, soybean samples to nearest ½ iodine-number unit; estimates to 1/10.

TEST VEGETABLE OILS *this FASTER, EASIER WAY!*

Bausch & Lomb
BUTYRO
Refractometer

- **SPEEDS PRODUCTION!** Horizontal loading saves time and effort. Easy to clean. Faster readings: single eyepiece shows color-compensated dividing line and 0-100 range scale (ND 1.42-1.46).
- **PROTECTS PRODUCT QUALITY!** Accurate to 0.1 Butyro number. Correct readings assured by micrometer drum reading system, constant temperature control circulating system, contamination-proof design, and positive prism-liquid contact.
- **LOWERS CONTROL COSTS!** This low-priced instrument releases expensive full-range units for other jobs. Trouble-free design protects vital parts from heat, dust, fumes, stray liquids . . . ensures minimum maintenance, maximum use.

FILL YOUR QUALITY CONTROL NEEDS FROM INDUSTRY'S MOST COMPLETE LINE

Only the *right* instrument for the specific job can protect quality standards . . . save time . . . cut production costs. Only the complete, top-accuracy Bausch & Lomb line assures you the *right* instrument for *every* job; on-the-spot production line inspection . . . field checks . . . research. Find out now how the *right* B&L instrument makes peak efficiency easy.

BAUSCH & LOMB
SINCE 1853

America's only complete optical source . . . from glass to finished product.

MAIL COUPON FOR COMPLETE DATA

BAUSCH & LOMB OPTICAL CO.
60624 St. Paul Street, Rochester 2, N. Y.

Send me complete data on the following B&L Refractometers:

☐ Abbe-3L ☐ Precision ☐ Butyro ☐ Industrial
☐ Dipping ☐ Juice ☐ Hand ☐ Oil Grading
☐ I would like a demonstration of the B&L Refractometers checked above.

NAME.....
TITLE.....
COMPANY.....
ADDRESS.....
CITY..... ZONE..... STATE.....

5924 on Reader Service Slip

Merchen Scale Feeders blending salt and trace minerals at Carey Salt Co., Hutchinson, Kansas.

MERCHEN SCALE FEEDERS

offer continuous dry blending by weight

The Carey Salt Company produces salt blocks for cattle that contain a percent blend by weight of nutritional minerals. W&T Merchen Scale Feeders were selected for the blending operation.

If accurate blending of dry, free flowing materials is important to your production, Merchen Scale Feeders offer feed rates from 3 ounces to 3000 pounds per minute, always maintaining accuracy within 1% of the feed rate. The feeders compensate for changes in material density to maintain a constant feed by weight.

Where a number of ingredients must be blended, Merchen Feeders can be electrically or pneumatically controlled from other plant equipment for automatic operation. Send for our free booklet M-33, "The Best Weigh is the Merchen Way."

WALLACE & TIERNAN INCORPORATED

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

CHLORINATORS and CHEMICAL FEEDERS

for
- slime elimination
- water treatment and purification
- industrial waste and sewage treatment

WALLACE & TIERNAN INCORPORATED

CD-41 25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

5925 on Reader Service Slip

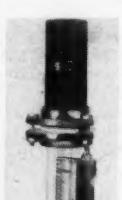
Directly, easily . . .

Records continuous process flow density

Uses: Provides direct, easy-to-read indication of liquid density of a continuously flowing process liquid.

Features: Liquid is passed continuously through this instrument, and temperature corrected specific gravity readings are made directly without reference to charts or graphs, eliminating time-consuming manual methods. A zero-set adjustment provides for original calibrations under working conditions.

Description: Instrument, for use at temperatures to 220°C, is available with ranges as small as .01 and as large as .50 specific gravity. It can be used at pressures up to 125 psi. Body is of Pyrex pipe; trim (inlet and outlet fittings) of type 316 stainless steel or Hastelloy B or C; a Pyrex plummet; calibrating chain of platinum or tantalum; standard connections, ½" NPT female; bi-metallic dial thermometer.



Direct indicating instrument for liquid density measurement is made by Precision Thermometer & Instrument Co., 1434 Brandywine St., Philadelphia 3, Pa.

For more information circle 5926 on Reader Service Slip.

Ultrasonic level indicator requires no moving parts, assures correct readings

Ultrasonic liquid level indicator completely eliminates need for floats, linkages, synchros, or any moving parts. Unit consists of an ultrasonic transducer and a transistorized indicator. The ultrasonic transducer assembly is installed

Outstanding Accuracy

PALMER

Dial Thermometer

Check these functional features

- Direct-drive Bourdon Coil with a filled system for longer lasting accuracy.
- Stem can be placed at any desired angle and case can be rotated to most readable position.
- External calibration for zero setting.
- Unaffected by stem alignment.
- Accurate to one scale division.
- No sticking at any temperature.
- Non-corrosive case.

PALMER

THERMOMETERS, INC.

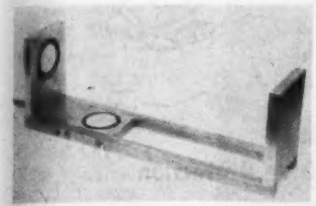
Mfrs. of Industrial Laboratory, Recording and Dial Thermometers

2515 Norwood Ave., Cincinnati 12, O.

5927 on Reader Service Slip

flush against a suitable bracket welded to bottom of tank containing liquid to be measured.

Transducer wires exit through integral Teflon pressure seals and weld nipple provided for attachment to conduit. Transducer connects



Ultrasonic transducer assembly of stainless steel assures no contamination of liquid product

to a transistorized indicator where liquid level is read directly in feet on dial. Indicator is provided with two ranges to accommodate tanks up to 15′ high.

One common indicator will gage as many as six transducer-equipped tanks within a radius of 1500′. Indicator consumes only 5w of 120v, 60 cycle power. No power is required at tank.

Built-in calibration feature assures correct level readings despite changes in velocity of sound propagation caused by varying temperatures, specific gravities, and similar differences between liquids being gaged.

Ultrasonic liquid level indicator (Model 300 Echogage) is manufactured by Bogue Electric Mfg. Co., 52 Iowa Ave., Paterson 3, New Jersey.

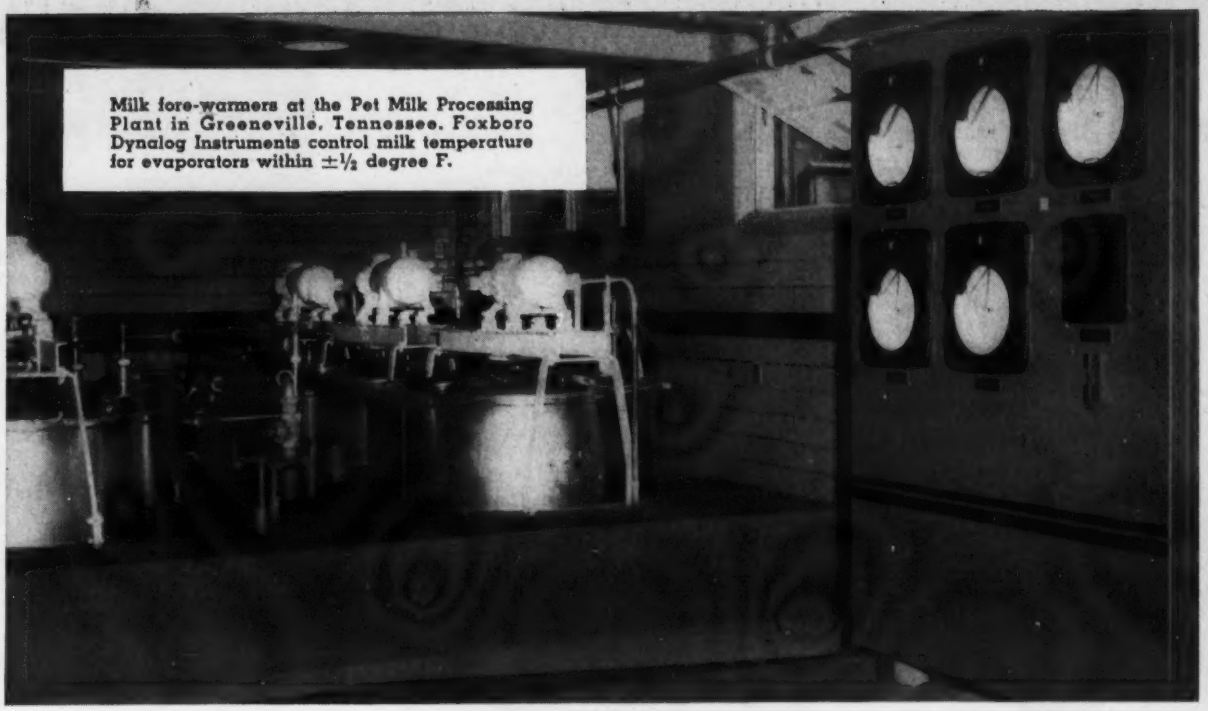
For more information circle 5928 on Reader Service Slip.

Pocket pH meter costs under $100

Uses: Pocket-sized pH meter gives on-the-spot pH readings in laboratory, plant, or field.

Features: Has combination glass and reference electrode with a 36″ lead. This sensitive electrode may be used while still clamped to instrument's side, allowing operator a free hand to make notations. Meas-

(Continued on next page)



Milk fore-warmers at the Pet Milk Processing Plant in Greeneville, Tennessee. Foxboro Dynalog Instruments control milk temperature for evaporators within ±½ degree F.

PET MILK reports: "Better product ...at lower operating cost"

with Foxboro Dynalog* Electronic Temperature Instruments

"Last March we converted our fore-warmers from manual to Foxboro automatic temperature control," reports H. H. Barney, manager of the Pet Milk Processing Plant in Greeneville, Tennessee. "Since then our Dynalog Electronic Instruments have held milk fore-warmer temperatures to within ±½ degree of set point. Control has been simpler and safer. Recording more accurate. And we're making a better product at lower steam cost."

Pet Milk's experience can be your experience. Dynalogs have a sensitivity of 1/100 of 1% of scale and accuracy of better than ¼ of 1% of scale . . . respond almost instantly to the slightest temperature change. Full-scale spans as narrow as 5 degrees can be measured within an over-all range of −100° to +675°F. Fully automatic control is assured by the Dynalog's sensitive pneumatic control action.

For accurate, sensitive, trouble-free temperature measurement and control, look to Foxboro Dynalog Instruments. Bulletin 20-10 tells all about them. Write for it. **The Foxboro Company, 9212 Neponset Ave., Foxboro, Mass., U.S.A.**

*Reg. U. S. Pat. Off.

DYNALOG DESIGN ASSURES HIGH *SUSTAINED* ACCURACY, TROUBLEFREE PERFORMANCE

Temperature measurement is smooth and continuous with Dynalog Electronic Instruments. There's no slidewire—no sliding contacts to cause step-by-step inaccuracies. Instead, a simple rotary capacitor gives uninterrupted measurement.

Dynalogs are inherently free from "drift" and maintenance problems. No dry cells to standardize . . . no fast-moving parts to lubricate or replace.

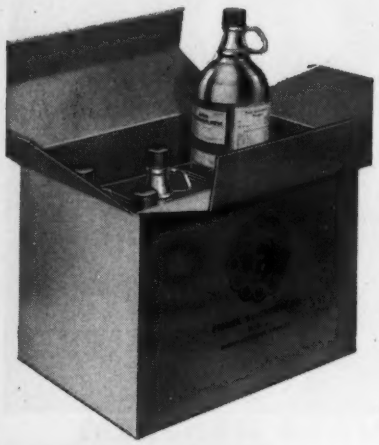
FOXBORO
REG. U.S. PAT. OFF.
DYNALOG
ELECTRONIC INSTRUMENTS

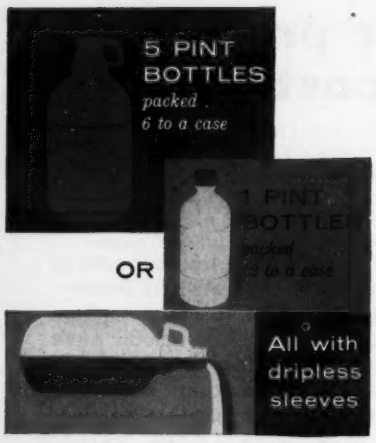
5929 on Reader Service Slip

USE AND DISPOSE!

FISHER REAGENTS *in* **DISPOS-IT®**

NO DEPOSIT NO RETURN *bottles and cases*





The ultimate in packaging and handling convenience and safety is yours when you buy reagents from Fisher. Shipped in tough ICC-approved corrugated cases, these high-purity Fisher reagents are available in 1-pint, 12-to-a-case units and 5-pint, 6-to-a-case units . . . all with safety, "dripless" pouring sleeves . . . all at no deposit . . . all in disposable glass containers. (Even nitric acid is now available in 5-pint, 6-to-a-case units in a special lightweight wood Dispos-it!)

- glacial acetic acid
- sulfuric acid
- hydrochloric acid
- ammonium hydroxide

B-69a

FISHER SCIENTIFIC

IN THE U.S.A. Boston, Buffalo, Charleston, W.Va. Chicago, Cleveland, Detroit, New York. Philadelphia, Pittsburgh, St. Louis, Washington. IN CANADA Edmonton, Montreal, Toronto

America's Largest Manufacturer-Distributor of Laboratory Appliances & Reagent Chemicals

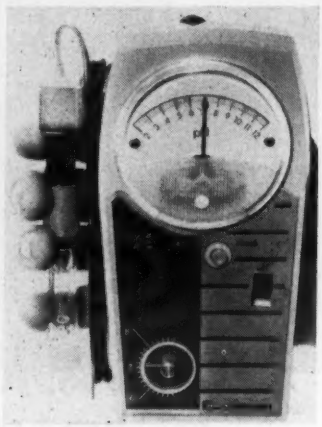
5930 on Reader Service Slip

instrumentation

(*Continued from preceding page*)

urements in range of 2 to 12 pH are possible, with readability of .1 pH. Lower pH values can be measured following simple adjustment.

Description: Meter is 6" long, 3" wide, and 2" deep, weighing only 2 lb. Two-tone gray case is made of acid-resistant melamine plastic with a scratch-resistant polystyrene face.



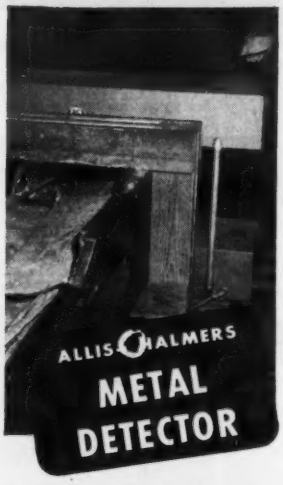
Power is supplied by six standard-type batteries

Pocket pH meter is manufactured by Beckman Scientific Instruments Div., Fullerton, Calif.

For more information circle 5931 on Reader Service Slip.

"I SEE THEY PASSED OUT THE CHRISTMAS BONUSES!"

Mr. Hi Frequency, the Electronic "Sleuth" Tracks Down Tramp Metal



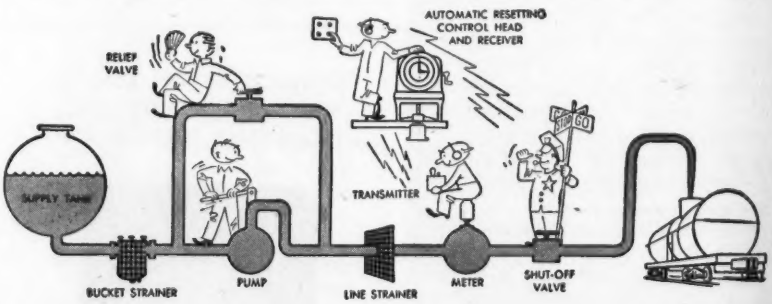
Gives Positive Protection

THIS electronic Sherlock apprehends Mr. Tramp Metal before he can sabotage your quality product. Magnetic or non-magnetic particles, no matter how deeply embedded, cannot evade the piercing eye of the metal detector without triggering a warning or reject mechanism.

The Allis-Chalmers metal detector is economical to operate and is easily installed in any production set-up. For complete information, contact your nearby A-C office or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wis. Ask for Bulletin 15B7217B.

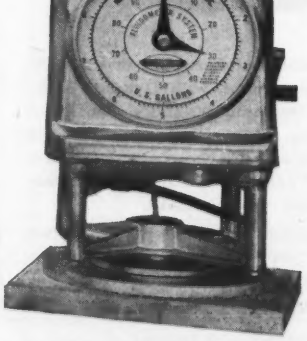
ALLIS-CHALMERS A-5285

5932 on Reader Service Slip



TYPICAL REMOTE CONTROL FLUIDOMETER SYSTEM

For Use Where Valves Must Be Located In Hard-to-get-to Places



This animated picture illustrates a typical remote control Fluidometer application. Remote control of this general type is recommended when plant conditions or arrangement make direct control impractical or impossible. With a system of this type the Fluidometer control head can be located away from the meter. Shown at the left is the automatic resetting control head, which controls the operation of the shut-off valve to give completely automatic batching. Available either jacketed or unjacketed—"tailor made" to fit your needs. New Bulletin Fl-56 will be sent on request. For information on jacketed pipe and fittings write for Bulletin J-56.

HETHERINGTON & BERNER INC. • *ENGINEERS-MANUFACTURERS*

757 KENTUCKY AVENUE INDIANAPOLIS 7, INDIANA

5933 on Reader Service Slip

Midget thermocouple

Features of midget thermocouple gland are outlined in a 4-page bul. "Conax Midget Thermocouple Gland", bulletin MTG, is available from Conax Corp., 2300 Walden Ave., Buffalo 25, N. Y.

For your copy simply circle 5934 on Reader Service Slip.

Humidity controller

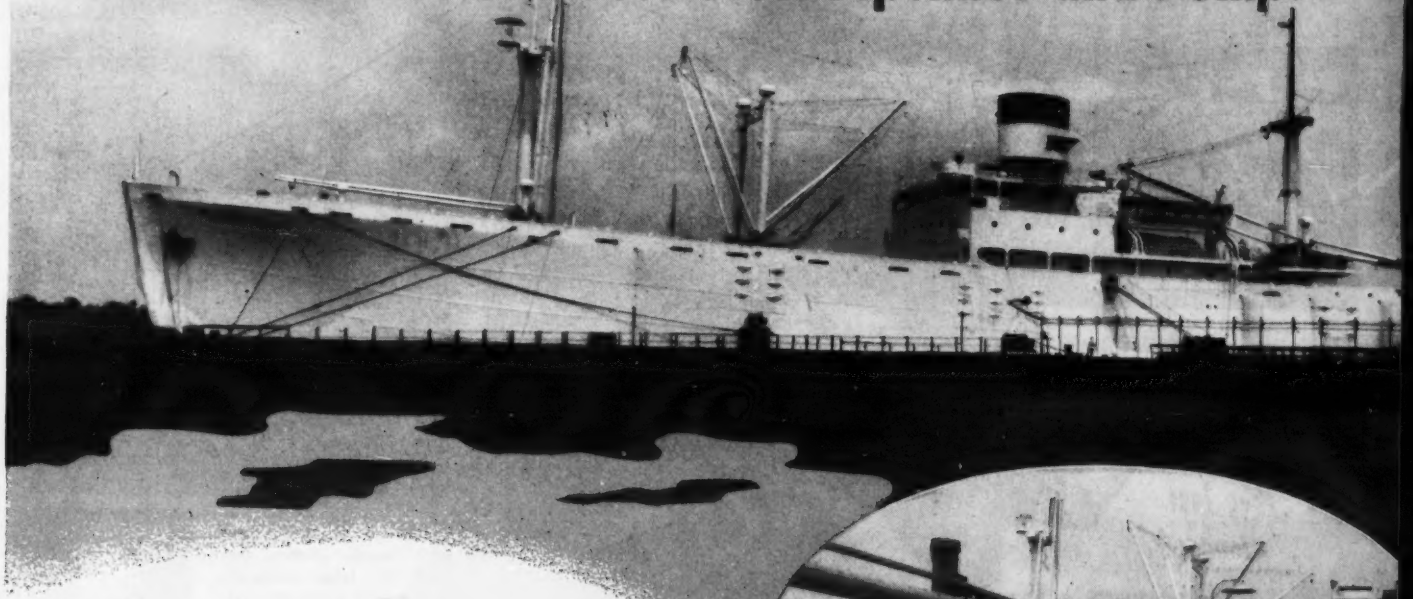
An 8-page bul shows system which detects moisture build-up in air-lines of pneumatically-operated instruments.

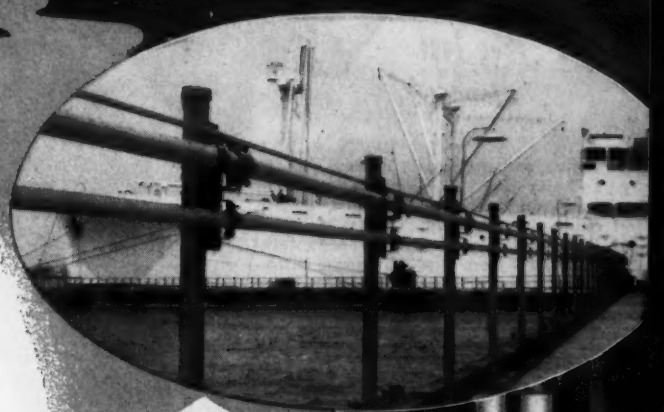
Bulletin 2273, "A Humidity Controller", may be obtained from American Instruments Co., 8030 Georgia Ave., Silver Spring, Md.

For your copy simply circle 5935 on Reader Service Slip.

For more information on product at right, circle 5936 see information request blank opposite last page.

Orange Juice "Tanker" handles cargo with TRI-CLOVER Stainless Steel Pipelines and Pumps





Named for the brand of orange juice it carries, the S. S. *TROPICANA* is an 8,000-ton cargo vessel now converted into "tanker" service for transporting some 650,000 gallons of fresh orange juice from Cocoa, Florida, to Whitestone, New York for its owner, Fruit Industries, Inc.

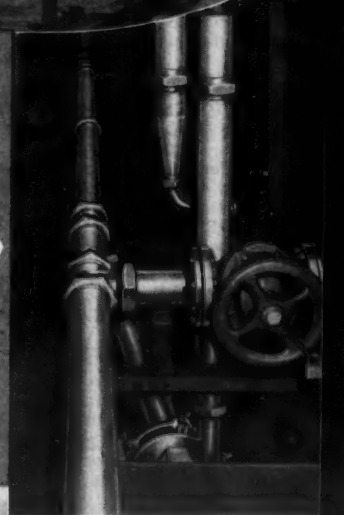
Only vessel of its kind in the world, the *TROPICANA* takes on and discharges its flavorful cargo via Tri-Clover Division 4-in. stainless steel "pipelines", sections of which are connected with "Tri-Clamp"® quick-action leak-proof clamp unions. On board the vessel, large-capacity Tri-Clover centrifugal pumps distribute the orange juice to huge insulated stainless steel tanks in the ship's cargo holds, where the liquid cargo is kept refrigerated, under vacuum, to preserve its freshness.

At the New York end the fluid cargo is piped ashore, stored and packaged in cartons for distribution—where numerous Tri-Clover stainless steel fittings, valves and tubing continually guard against product contamination.

Unusual, perhaps, but an excellent example of the way in which processors rely on Tri-Clover Division products to protect product quality, resist corrosion, and render long, trouble-free conveying line service.

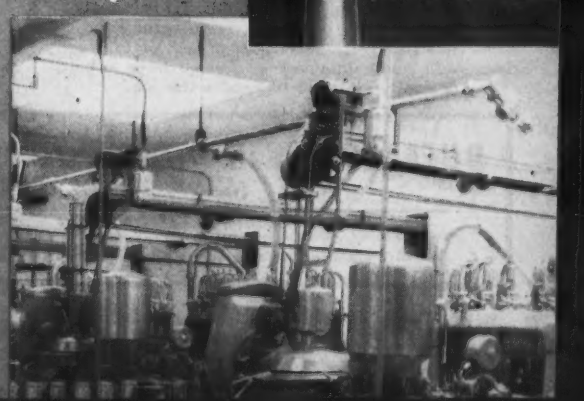
See your nearest TRI-CLOVER Distributor.

Section of 4" O.D. stainless steel "pipeline" with Tri-Clamp fittings for transferring fluid cargo to shore-side tanks.



One of the Tri-Clover pumps and part of the Tri-Clover fittings used aboard ship to transfer juice in loading and unloading operations.

View of shore-based packaging operations where juice is again conveyed through Tri-Clover fittings, valves and tubing.



EXPORT DEPT:—8 So. Michigan Avenue, Chicago U.S.A.—Cable: TRICLO

IN CANADA— Brantford, Ontario

LADISH CO.
Tri-Clover Division
Kenosha Wisconsin

S-857

TRI-CLOVER

NOTHING HURTS a cushion . . .

BUFFALO "Cushionized" CONVEYOR BELTS

. . . they last longer!

Conveyor belts take a beating, day in and day out . . . and most of them wear out "too soon" *because* they're made of supposedly TOUGH material. Buffalo Conveyor Belts are solidly WOVEN from the strongest cotton yarn ever produced. Yes, they're STRONG . . . but never HARD! They're BOUNCY and PLIABLE. That's what we mean when we call them "CUSHIONIZED". Whatever you make, heavy or hard . . . drop it on a Buffalo Belt all day long and see the difference.

Woven cotton is "bouncy" and, like the pillow, absorbs blows without the slightest shock or wear. Nothing that you normally convey can DIG, DENT or DESTROY Buffalo Belts, except OLD AGE itself! If your conveyor is out of line, the PLIABILITY of woven cotton is doubly important. Hard, rigid, plied-up belts grind, groan and WEAR on imperfect lines. Buffalo woven cotton Belts merely mould themselves *over* or *around* irregularities and keep on going smoothly . . . without abrasion. Because they GIVE . . . you GET an awful lot of EXTRA WEAR. Next time . . buy the "belt with the bounce" . . . buy Buffalo!

200 SIZES
35 WIDTHS
7 THICKNESSES

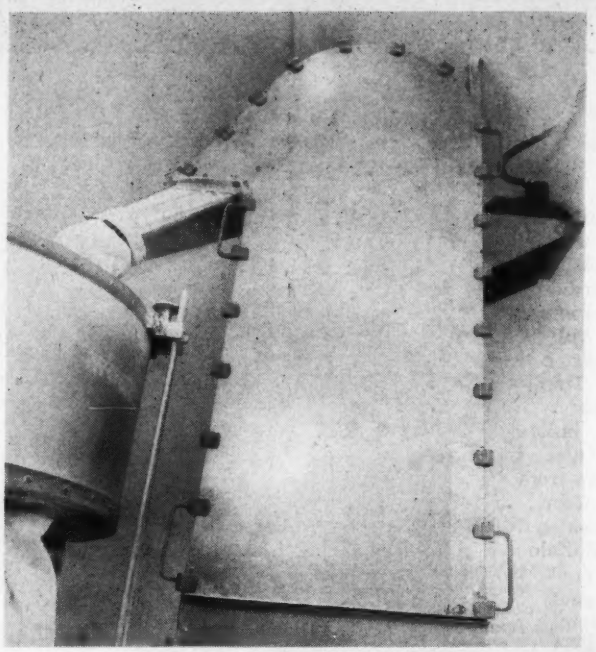
6 SPECIAL SURFACES

In addition to Buffalo's regular woven belt, which is ideal for most conveying jobs, we also COAT this basic belt SIX DIFFERENT WAYS to meet SPECIAL REQUIREMENTS. Whether you need a belt to resist weather or water; acids, oils, grease or alkalies; highest or lowest temperatures or to handle dainty pure foods or just plain rough and tough material . . . we have a belt, specially surfaced to handle the job.

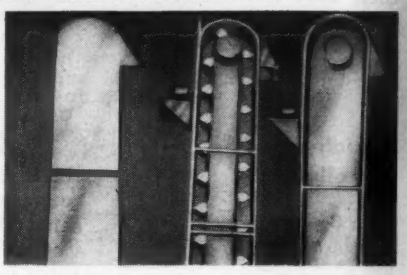
WRITE
for 14 page manual
on "How to Buy The Correct Belt for Your Conveying Job". Illustrates regular and treated Belts and their USES.

BUFFALO WEAVING & BELTING CO., INC.
208 CHANDLER STREET BUFFALO 7, NEW YORK
NEW YORK PHILADELPHIA CHICAGO DETROIT LOS ANGELES
We also manufacture a complete line of WEBBINGS and PURE SHEET RUBBER.

5937 on Reader Service Slip



Removable panels, fastened with toggle clamps, are each 5' long maximum, and extend along one side of elevator enclosure. Diagram (right) shows arrangement of pulleys and neoprene belt, on which stainless buckets are mounted



Bucket elevator cleaned easily between batch change-overs

Compact stainless conveyor simplifies maintenance with:

1) **quickly removable inspection panels;**
2) **dust-tight gaskets and seals;**
3) **mounting washers that prevent material build-up between buckets and belt**

N. J. ORBE, President
Magic Mix Corp., division of
New Jersey Flour Mills Co.
JOSEPH L. WHITE, Product Editor

Problem: After deciding to add a complete line of bakery and institutional prepared mixes, Magic Mix Corp., division of New Jersey Flour Mills Company, began selecting equipment for sifting, blending, dispersing, and packaging, as well as for moving mix ingredients through these processes. Limited floor space dictated vertical arrangement of processing stages. Also, material handling posed a special problem, because quick and thorough cleaning of conveyor was required between change-over from one mix to another.

Solution: A compact, stainless steel bucket elevator — capacity 10,000 to 12,000 lb/hr, total lift 24′ — was selected. It provides for fast and thorough cleaning by means of

removable panels held by toggle clamps. Panels comprise one entire side of elevator. Pulleys, shafts, and belts, along with buckets, are easily accessible and may be removed when complete sterilization is desired.

This feature is made possible by cantilever design of top and bottom pulley shaft supports. In fact, elevator's entire casing is self-supporting. To make the enclosure dust-tight, panels are gasketed with white food-grade neoprene. Also, both top driveshaft and bottom take-up idler shafts have easily disassembled, dust-tight mechanical seals.

Bottom section of elevator — feed hopper at left. Note cantilever arrangement of outboard bearing on idler shaft, enabling quick removal of conveyor panels from housing

Stainless steel buckets are held away from the food grade neoprene belt by thick washers — preventing accumulation of material between bucket and belt. All pulleys are solid, with stainless shafts, eliminating cracks or crevices where contamination could occur. Elevator casing corners have generous radii to avoid hang-up of material.

Outside the product zone, carbon steel provides economy and reduced total weight. Over-all floor space required is only 18" x 17". However, as head room was inadequate to house all machinery, a cupola had to be built above the roof. Cross-section of the elevator is only 7" x 22".

Model 30 stainless bucket elevator is built by Bucket Elevator Co., 360 Springfield Ave., Summit, N. J.

For more information circle 5938 on Reader Service Slip.

Sales volume up . . . net profit down . . .

why not do something about it?

Cut material handling costs with MOTO-TRUC

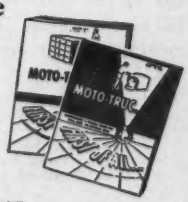
Hi-Lift "Walkie" Type 3000-4000 lbs. capacity
Platform "Walkie" Type 4000-10,000 lbs. capacity
Grip-All Tractor
Pallet Type "Walkie" truck 4000-6000 lbs. capacity

MOTO-TRUC will be one of the best investments you ever made. Modern, functional design and rugged dependability assure lowest operating costs. Small size and easy maneuverability enable MOTO-TRUCs to work efficiently in tight spots where larger trucks can't.

MOTO-TRUC builds only the rugged, powerful, quick moving "Walkie" and "small rider" trucks. Any business with material handling problems regardless of its size, needs MOTO-TRUCs.

MOTO-TRUCs' many exclusive and important features insure efficient and economical operation, and many, many years of faithful service.

Help to lick old man "overhead" by putting MOTO-TRUC on the job. Your local Dealer will give you full details. He'll be glad to help you solve your material handling problems.



We'll be glad to send you catalog No. 56W Walkie Trucks and No. 56R Rider Trucks upon request.

Builders Of The First Walkie Truck

MOTO-TRUC Designed FOR THE INDUSTRY PATENTED

The MOTO-TRUC Co.

1988 E. 59th St., Cleveland 3, Ohio

Representatives in Principal Cities

Pallet . . . Platform . . . Hi-Lift Truck

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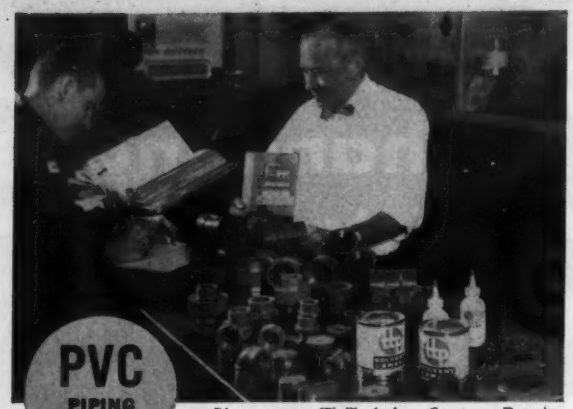

Photo courtesy W. T. Andrew Company, Detroit.

The full line...nearby

Your nearby Tube Turns Plastics' Distributor can deliver promptly from the complete line of **ttp** unplasticized PVC fittings, flanges, valves, drainage fittings . . . also solvent cement and thread lubricant. Complete information on these products, plus valuable data on application of PVC piping in Bulletin 119—free on request. Write Tube Turns Plastics, Inc., Dept. P-12-FP, 2929 Magazine St., Louisville 11, Ky.

Call your TUBE TURNS PLASTICS' Distributor

TUBE TURNS PLASTICS, INC.
Louisville 11, Kentucky

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Greater Production Flexibility
with
Screw-Lift - Screw-Veyor
PATENTED AND TRADE MARK REG U S PAT OFF — PATENTED AND TRADE MARK REG U S PAT OFF

IMAGINE your bulk materials being handled by a series of horizontal and vertical screw conveyors operating within a tube! That's what a Screw-Lift — Screw-Veyor system is — and it offers push button control at any stage from receiving to storage, to reclaiming for processing and/or to ultimate packaging.

Screw-Lift, Screw-Veyor systems are dust-tight, moisture-proof and require little operating space . . . entire assembly is enclosed and operates anywhere a pipe line can be run — no manual attention — cannot clog at junctions — offers sanitation, safety and reduces fire hazard. Patented design advantages place Screw-Lifts and Screw-Veyors in a class by themselves. Thousands in use handling a multitude of different materials.

Contact us before making commitments on your material handling. We can show you how a Screw-Lift, Screw-Veyor system will save many dollars in installation and operating costs.

Three of the largest feed processing plants in the U.S.A. have over 100 Screw-Lifts in continuous operation
Screw Conveyor Corporation
HAMMOND, INDIANA
MANUFACTURERS

5941 on Reader Service Slip

material handling

Container's built-in pallet speeds storage, shipping

Available in sizes to handle up to 1 ton

Uses: For simplified handling, shipping, and storage of granular bulk materials.

Container liner permits use for food items

Features: Eliminates need for separate pallets. Because of square shape, containers store compactly in boxcars in rows three wide by two high. Reinforced walls provide product protection. Stores in 1/7th the space of barrels.

Description: Comes knocked-down for space-saving storage; sets up in 1½ min. Pallet base aids in handling for unloading by tipping, vacuum, or bayonet in bottom. Lid and sides may be imprinted.

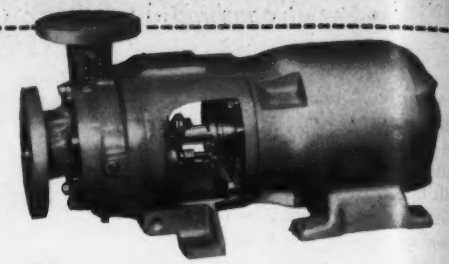
Lift-Pack is available from Titan Pallet Co., 342 Madison Ave., New York 17, N. Y.

For more information circle 5942 on Reader Service Slip.

Box car, trailer doors cleared by this truck

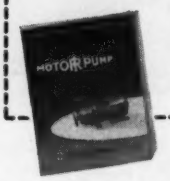
Features: Needs only 6′ clearance to enter box cars and highway trailers. Operator's seat is 38″ below top of mast.

Description: Capacity is 6000 lb with over-all height of 68″. Forward tilt is 5°, rear tilt, 10°. Turning radius 99″, maximum lift 97″. Speed with load, 4 mph.



full capacity pumping power

There's maximum performance with space-saving compactness in the design of Ingersoll-Rand's Motorpump. Capacities from 5 to 2800 gpm . . . heads to 650 feet. Easy installation. Precision manufacturing means dependable, smooth operation.



For your liquid-moving problems . . . Send for I-R's catalog on Motorpumps.

Ingersoll-Rand
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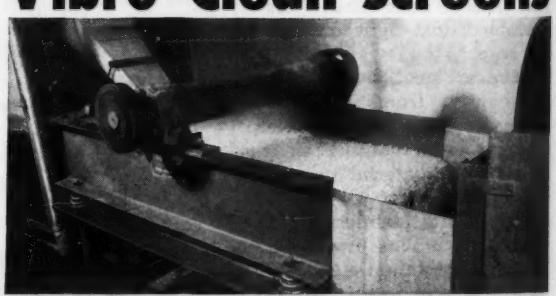
LINK-BELT
Vibro-Clean screens



BLANCHED CORN is quickly, effectively dewatered by this Link-Belt Vibro-Clean screen at Oostburg (Wis.) Canning Co. Corn is discharged directly to filling machines below.

- **Fast**
- **Thorough**
- **Sanitary**
- **Economical**

Link-Belt Vibro-Clean screens are the answer to fast, sanitary, low-cost cleaning and dewatering of food products. Absence of corners and crevices eliminates danger of bacteria build-up. High-speed vibration permits handling of extremely high capacities without blinding. Write for Book 2435.

LINK-BELT

VIBRO-CLEAN SCREENS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7.

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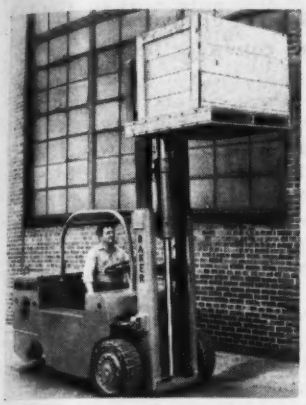


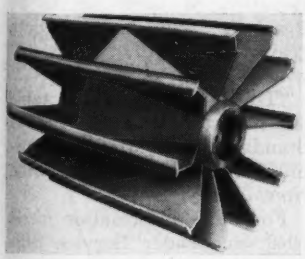
6000-lb truck's over-all height is only 68"

Type FTDL-60 truck is made by The Baker-Raulang Co., Div. of Otis Elevator Co., 1250 W. 80th St., Cleveland 2, Ohio.

For more information circle 5945 on Reader Service Slip.

Cone design of pulley eliminates build-up

Features: Self-cleaning cone design eliminates material buildup between belt and pulley and prevents consequent belt maladjustment.



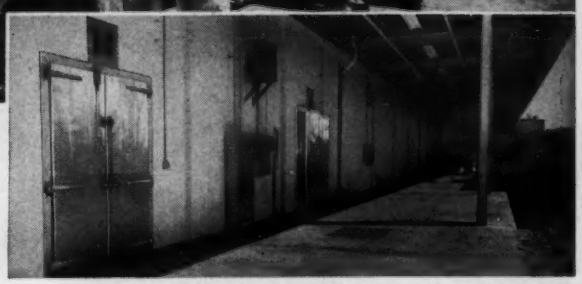
Bar-type edge on wings reduces belt strain

Description: Outer edge of each individual wing is protected by a half oval bar that reduces belt strain and provides maximum traction. Pulleys are available in 3000 standard sizes. Diameters range from 8" to 60"; face width from 8" to 66"; bore sizes from ½" to 10".

Steel self-cleaning pulleys are made by Van Gorp Mfg. Co., Inc., Box 123, Pella, Iowa.

For more information circle 5946 on Reader Service Slip.

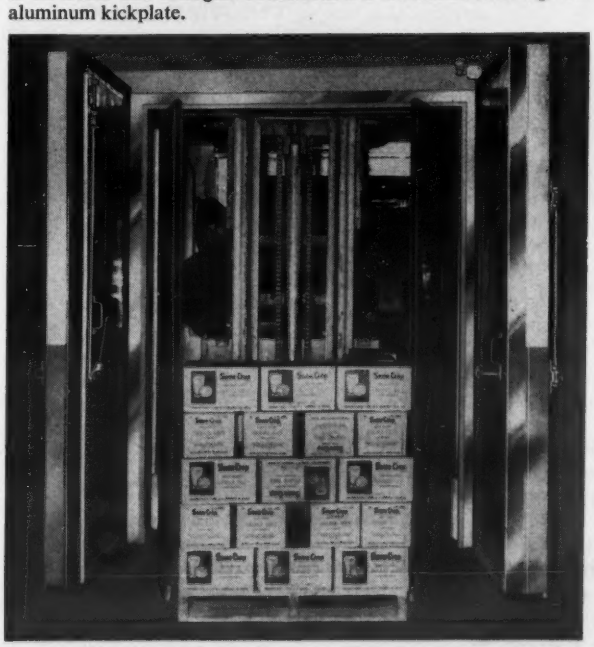
Faster handling speeds bulky loads in production line technique through wide Jamison Aluminum Clad Double Vestibule Track Doors. Note extra protection of aluminum kickplate.



Huge loading dock is spotted with Jamison Doors that lead directly into cold storage and sub-zero rooms.

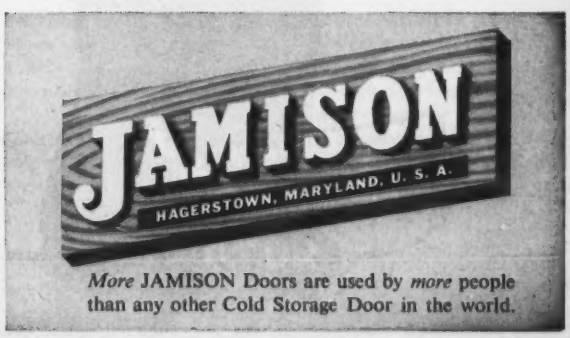
New Food Fair warehouse with aluminum clad doors a Jamison FIRST

Minimum cold loss is afforded by Jamison Double Vestibule Super Freezer Door. Frostop—which prevents door from freezing shut—is on frame and astragal. Construction is aluminum cladding with aluminum kickplate.



For the 57 Jamison Cold Storage Doors installed in their new Florida warehouse, Food Fair specified aluminum cladding for protection against corrosion, mechanical damage and vapor penetration. Jamison aluminum cladding also provides bright, easy-to-clean surfaces and lighter weight doors.

Jamison Doors have been recognized as the practical and economical solution to warehousing problems everywhere. For help with *your* problem, or specific data on Jamison aluminum cladding, write to Jamison Cold Storage Door Co., Hagerstown, Md.



More JAMISON Doors are used by *more* people than any other Cold Storage Door in the world.

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Check the cost and see...

THERMO KING

TRUCK REFRIGERATION

COSTS LESS

- *to own*
- *to operate*
- *to maintain*

It costs less to own because it's produced in volume by the leader in the truck refrigeration field. This means a lower selling price.

It costs less to operate because of its exclusive start-stop system. It doesn't just idle down—it shuts off the engine completely when your load has reached the proper temperature, and starts again when needed.

It costs less to maintain because 20 years of engineering advancement has perfected the unit with fewer parts, maximum cooling, and trouble-free operation. Your best truck refrigeration buy is **THERMO KING.**

NATIONWIDE SERVICE: Thermo King service stations on all important truck routes in United States, Canada and Mexico

THERMO KING CORP., 44 S. 12th ST., MINNEAPOLIS 3, MINN.

5948 on Reader Service Slip

material handling

Speeds up traffic on conveyor lines

Uses: Serves as a junction for 2, 3, or 4 gravity conveyor lines. Also useful where it is desired to cover a broad area by shifting of a gravity conveyor. In this case, the table is used as a variable angle gravity curve.

Features: Four brackets at outer rim of table are for use in gravity conveyor applications. Free to slide completely around, they permit any pattern of conveyor junction.

Transfers loads between gravity conveyors

Description: Legs adjust for elevation of table up to 6'. Brackets will accommodate gravity conveyors up to 18" wide.

"Traffic Circle" ball table transfer stand is built by M-H Standard Corp., 513-521 Communipaw Ave., Jersey City, New Jersey.

For more information circle 5949 on Reader Service Slip.

Markel reprints available

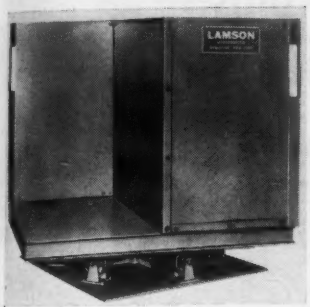
A combined reprint of FOOD PROCESSING articles on Michael Markel's proposal to amend FDA standards of identity are available in 20-page pamphlet. Single copies without charge; quantity prices on request. Address: Editor, FOOD PROCESSING, 111 E. Delaware Pl., Chicago 11, Ill.

Palletizing turntable handles two-ton loads

Designed for pallets up to 48" x 48"

Uses: Simplifies and accelerates hand palletizing.

Features: Provides two surfaces for locating cases on pallets, assuring accurate positioning for stable load.



Turntable requires only 30 lb of manual effort to rotate

Description: Turntable handles both two-way and four-way pallets up to 48" x 48", and loads up to 4000 lb/pallet. Platform rotates on six inverted casters, mounted to a plate which need not be attached to floor.

Erecto pallet turntable is built by Lamson Corp., Syracuse 1, N. Y.

For more information circle 5950 on Reader Service Slip.

...here's "manpower" that hands you a bonus!

Think how many of your plant's handling jobs can be accomplished with much less effort—swiftly and profitably—by one operator "teamed up" with a powerful Towmotor fork lift truck!

You get an entirely new concept of modern mass-handling. You get a "bonus" in extra profits because you multiply manpower with the payroll you have. And you get a bonus in plant-wide morale when work flows on-schedule through every department . . . effortlessly . . . with a bigger day's work done.

Called the "ideal" fork lift truck by management and operators alike, the latest Towmotor models offer exclusive features as advanced as these, at no extra cost:

- New-concept functional engineering
- Simplified dual-entry compartment
- Full-traction weight distribution
- Adjustable off-center visibility
- New *motion-studied* centralized control
- Towmotor improved precision steering

Power steering, 'TowmoTorque' Drive at extra cost

These and 60 other points of superiority are described in Towmotor booklet SP-23 for comparison. Get a copy from Towmotor Corporation, Cleveland 10, Ohio.

Leaders for 38 years in building Fork Lift Trucks and Tractors

TOWMOTOR — THE ONE-MAN-GANG® — GERLINGER

* Gerlinger Carrier Co., Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland, Ohio

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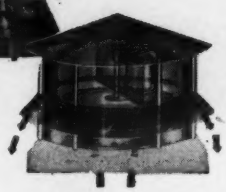
SAFE
moisture and fume removal

Three outstanding features make Air-Van Power Exhausters especially suited for exhausting moisture and corrosive fumes.

Direct Drive
150 to 11,000 CFM.
S.P. to 4".



Belt Drive
3,000 to
65,000 CFM.
S.P. to 4".

- A patented scroll design assures positive air removal. Gallaher Air-Vans are designed to handle up to 65,000 CFM at static pressures to 4".
- The motor is out of the air stream.
- A patented air seal-off protects the motor by creating a constant curtain of fresh air around the motor shaft. This prevents any fumes from entering the motor housing.
- Other Air-Van features include quiet operation, low silhouette, weatherproof design, availability in special metals and finishes and certified ratings based on actual physical tests.

Patents 2188741 2526290
Patents pending

The GALLAHER Company
4108 Dodge Street Omaha, Nebraska
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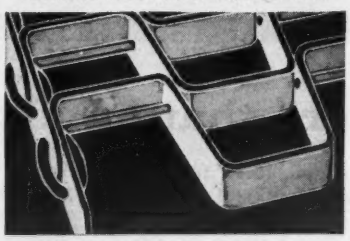
Every Food Conveying Job
Is a PUSHOVER for
LA PORTE

You can handle every food-conveying operation from the loading hopper to shipping room with La Porte Belting.

Its rugged steel construction provides for long service. The open mesh feature assures a tight grip on the drive sprockets, eliminating creeping, weaving and jumping. It also permits quick cleaning with steam or scalding water without removing belt from friction drum, and allows for circulation of heat, cold, liquid or air around products in process.

This endless belt provides a perfectly flat surface for containers, empty or filled. Made of best galvanized material obtainable. It's the most dependable and economical belt for every process and handling operation.

FLEXIBLE STEEL CONVEYOR BELTING



Available in ½" x 1"; also 1" x 1" in any length and practically any width.

LA PORTE *Ask your Mill Supplier or write for illustrated literature, prices.*

MAT AND MFG. CO.
BOX 124 Dept. A La Porte, Indiana

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'Pre-assembled' orders move in mobile bins cut handling costs

Mother's Cookie Co. mass handling method unitizes shipment, speeds loading, unloading

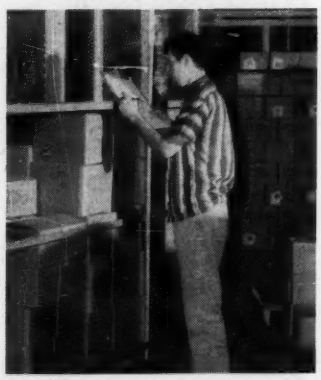


Fig. 1 Metal rack is loaded in central plant with one salesman's order per rack

Problem: Orders for salesmen at branch locations were shipped by semitrailer from Mother's Cake & Cookie Co. plant in Oakland, Calif. Orders were assembled and loaded, box by box, into the "semi" van. At the delivery point, truck would be unloaded by the same manual means. Each salesman's order was then placed in stacks in the loading area, awaiting his pickup.

Individual handling of each box several times was expensive. Additional help, obtained from other plant operations, was needed each time the truck-trailer was loaded. At the discharge end of the journey, unloading was sim-

Fig. 3 Completed order for each route salesman truck is loaded as a unit, replacing the handling of individual boxes in and out of large highway truck

Fig. 4 At unloading point, unitized orders are unloaded via truck-carried rails and truck-mounted electric winch

ilarly laborious and time consuming. Delays at both ends were common, orders were sometimes intermingled and confused, and salesmen's time was lost. Therefore, mass-handling methods were investigated.

Solution: A materials handling process was developed at Mother's Cookies whereby all orders for one salesman are filled into one mobile bin (Fig. 1). The bin, containing the completed order, is then loaded into the trailer. At discharge point the castered bin is wheeled out of trailer, and can then be wheeled directly to salesman's truck.

Inverted "U" rails (See Fig. 2) are permanently laid in the trailer floor, making it easy to handle the racks in and out of truck. Fourteen racks fit snugly crosswise in the trailer van. Racks are 7′ wide, 6½′ high, and 2′ deep.

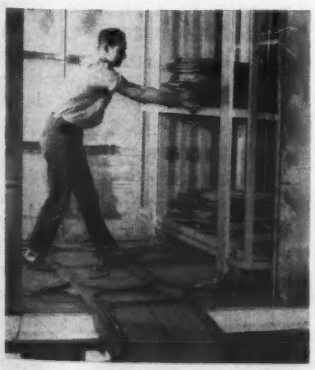


Fig. 2 The 7'-wide racks fit snugly crosswise in the trailer. Note tracks in floor for easy loading, unloading

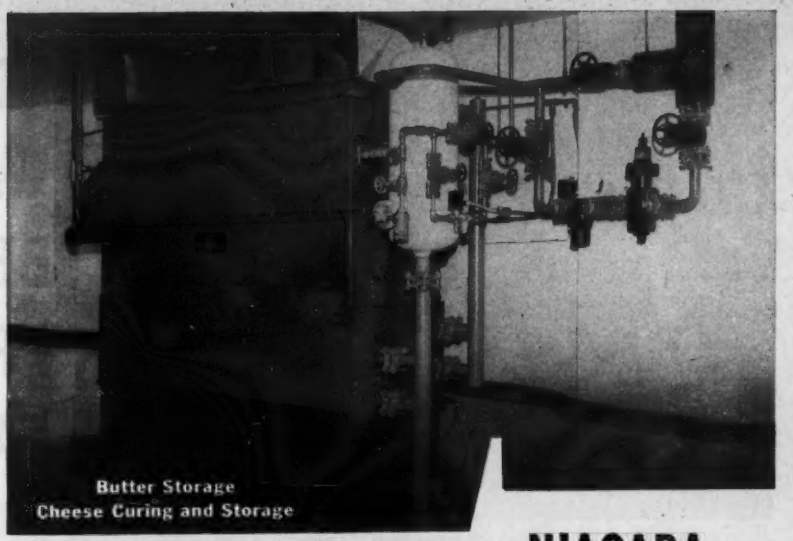
At the central Mother's plant in Oakland, racks are manually pushed in and out of truck (See Fig. 3) from raised dock. At branch plants, a winch mounted in truck floor discharges the mobile bins to ground level. Winch also pulls empty bins into truck for return to plant. Unloading rails (See Fig. 4) for street-level discharge are slung under body of trailer van when not in use. The winch is electrical, and uses 110 v ac current at location.

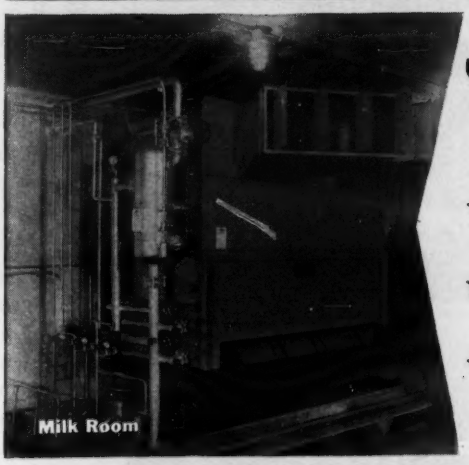
Results: The "pre-assembled" orders centralize labor and responsibility at the plant. One man can handle the order picking. He fills all orders onto the mobile racks as he pushes them down the aisle. When order is filled, he pushes rack onto dock to await arrival of the truck.

Truck and trailer unit is now tied up for shorter time at both ends of trip, increasing handling efficiency.

No extra help is needed at either loading or discharge point. Salesmen can check and

(Continued on next page)





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"NO FROST"
25 Years' Successful Experience

★ Protect frozen food quality

★ Get faster temperature "pull-down"

★ Never any defrosting shut down

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Dept. FP-12, 405 Lexington Ave. New York 17, N. Y.
District Engineers in Principal Cities of U. S. and Canada

5954 on Reader Service Slip

Dairyland Poultry Inc., Butler processing plant at Endeavor, Wisconsin.

Note excellent natural lighting, ventilation and sanitation characteristics.

Simple, functional lines create essentially pleasing exterior.

LOOKING FOR A WAY TO BUILD BETTER FOOD PROCESSING FACILITIES?

It is just the nature of the food processing industry that physical plant investment be kept to a minimum. Competition is keen. Margins are low—low even in the midst of a veritable revolution in processing, packaging and distribution. Construction expenses that would be considered normal in other industries are often sheer luxuries in food processing facilities.

That's why Butler pre-engineered buildings are so obviously *right* for food processing plant and storage construction. Your initial investment in planning and engineering time is minimized. Butler buildings are half finished before you sign the order—ready for occupancy weeks to months sooner than traditionally-built structures. The finished plant outperforms buildings costing much more. Post-free spans up to 120 feet provide unobstructed interiors for flow planning. Human comfort—better light, ventilation and ease of heating are characteristics pre-engineered into Butler buildings.

You can expand or change a Butler plant with much less time and money, practically no demolition. Doesn't this sound like the building for this industry? It is priced to prove it . . . not the lowest-cost way to get mere shelter, but the lowest-cost suitable construction.

For further details on Butler buildings—the low-cost way to build better food processing facilities, contact your Butler Builder. He's listed in the Yellow Pages of your telephone directory under "Buildings" or "Steel Buildings." Or write direct.

BUTLER STEEL PRODUCTS

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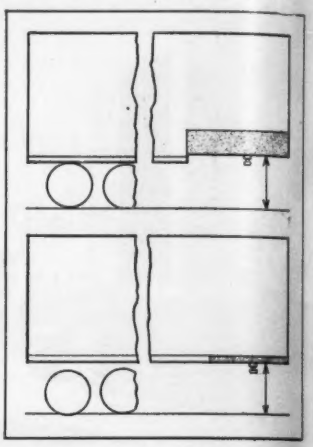
5955 on Reader Service Slip

(*Continued from preceding page*)



Mother's cookies is using new over-the-road trailers (lower drawing) with level floor and maximum cube. Conventional trailer (upper) has step to carry fifth wheel

load their orders directly into their truck without delay. System has worked out so well that it is now being used at the Vernon plant (near Los Angeles) of Mother's Cookies.

Thin grid fifth wheel

A feature of the trailers used in this fleet is the level floor, and thin grid construction for upper fifth wheel. How this design contributes to the greatest possible cube without resort to conventional step-type drop frame design is indicated in accompanying drawings. Height of floor is raised to increase tire clearances and improve dock floor level conditions. Capacity of drop frame design is actually exceeded in a straight frame trailer. Restricted use of lift trucks ahead of drop is eliminated. Advantages to user include loading at dock level floor height.

Semi-trailers, with "Lo-level" upper fifth wheels, and fitted to handle mobile bins, are built by Trailmobile Inc., 901 Gilman St., Berkeley, Calif.

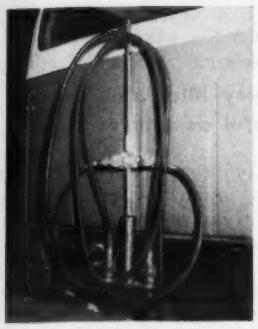
For more information circle 5956 on Reader Service Slip.

Mobile bins are manufactured by Earl Sherman & Co., 2526 Wood St., Oakland, Calif.

For more information circle 5927 on Reader Service Slip.

Compression-type spring feature of hose holder

A new-type hose tender features a long-life compression spring, and handles all lengths and weights of truck tractor hose as well as electric cable. Spring is adjusted



Tender handles both hose and electric cable

to proper tension at factory. It eliminates hose whipping and hose slack, is self-snubbing, and avoids cab rap and consequent damage to paint.

One bolt adapts the unit for easy mounting — no need to drill cab backs.

Hose-Tenna is available from Vari-Products Co., 2450 S. Prairie Ave., Chicago 16, Illinois.

For more information circle 5958 on Reader Service Slip.

Heater tubing of aluminum proves rugged, flexible

A rugged, yet soft and flexible heater tubing is workable without tools. It shapes to fit any connection and bends more easily than copper. It is rustproof inside and out. An additional advantage is resistance to vibration fatigue.

Shipped in 50' coils, individually boxed. Also available in compact sets containing 20 precurved tubes of various shapes and lengths, plus connecting parts.

"Alumiflex" tubing in coils and kits is available from Everhot Products Co., 2001 Carroll Ave., Chicago, Ill.

For more information circle 5959 on Reader Service Slip.

NEW HUSTLE FOR '58 . . . CHEVROLET LIGHT- AND MEDIUM-DUTY HAULERS

More horsepower . . . more staying power in V8's and 6's!

New Chevrolet light-duty Apache and medium-duty Viking models bring you V8's and 6's that deliver more horsepower, more economical and dependable hauling for the toughest jobs you've got!

There's new standard power in every light-duty model . . . a more powerful (145 h.p.!) edition of the engine most famous for economy and dependability, the rugged Thriftmaster 6. And the optional (extra-cost) Trademaster V8 is *all new*, the most highly powered light-duty truck engine in Chevrolet history! It's ready to go to work with 160 h.p., 283 cubic inches of displacement, short-stroke efficiency and weight-saving compactness!

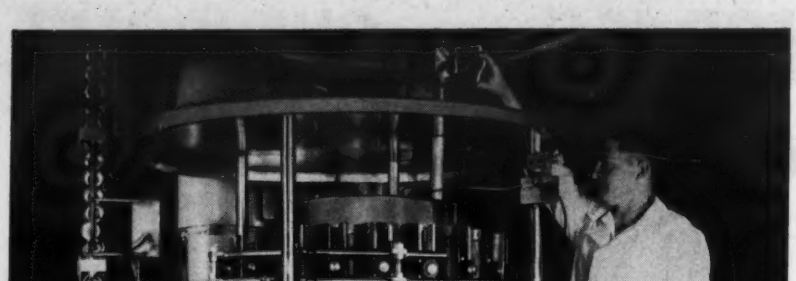
Chevy for '58 is here with new medium-duty power, too! Standard in Series 50 L.C.F. models is a new version of the Heavy-Duty Taskmaster V8, with 160 h.p. for fleet hauling and new durability features such as Stellite-faced exhaust valves and induction-hardened exhaust valve seats. And standard in Series 60 models is the time-proved Jobmaster 6 with more power than ever—150 h.p.—and a host of new features that mean more economy and dependability on jobs that work a truck hard. See your Chevrolet dealer and *save* with Chevy's new brand of hustle! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

Latest editions of the "Big Wheel" in trucks

NEW CHEVROLET TASK·FORCE 58 TRUCKS

CHEVROLET

5960 on Reader Service Slip



Do you sacrifice accuracy for faster filling?

Look then to Pfaudler and the rotary piston fillers with which there is no sacrifice of accuracy or speed when you fill foods and other viscous and semi-solid products.

With Pfaudler rotary piston fillers you can choose filler speeds from 40 cans a minute to as high as 1000 cans a minute, and still get the extra features and accuracy that weren't considered possible a few years back.

FEATURES LIKE THESE:

Accuracy to 1/10 ounce. Rated to fill within specified tolerances—usually within ± 1/10 ounce. *No container-no fill* control on every machine.

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Low maintenance costs. Just four primary wearing parts—piston rollers, valve rollers, valve trip cams and wear pads on valve locks... each part durable, low cost and easy to replace.

There is a range of five Pfaudler piston fillers to meet your viscous and semi-solid liquid needs.

Check the coupon for more information on these fillers plus other integrated process equipment from Pfaudler.

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5961 on Reader Service Slip

new literature

Reviews of books and industrial bulletins describing equipment, supplies, services

Freezing precooked and prepared foods

The second volume of "Freezing Preservation of Foods", by Dr. D. K. Tressler and Clifford Evers, is devoted to the production, marketing, and use of frozen precooked and prepared foods and desserts. Information presented includes preparation and freezing procedures for soups, stews, poultry and meat pies, fish sticks and shellfish dishes, complete meals on a platter, sauces and gravies, whip toppings, puddings, infant foods, geriatric foods, Chinese, Kosher, Mexican, and other foreign dishes, pancakes and waffles, canapes and other appetizers, and bakery foods. One chapter is concerned with freezing and storage of confections.

Vol. II, "Freezing of Precooked and Prepared Foods", 559 pages with 125 illustrations, is available for $10 from The Avi Publishing Co., Inc., Westport, Conn.

Animal nutrition and feed formulas

Latest feed-lot and feed-lab research results are compiled in manual previously revised in 1947. Detailed formulas for poultry, swine, dairy and beef cattle, sheep, and pet animals cover 52 pages of this 240-pg, pocket-size book. Also contains classified directory of feed equipment, ingredients and supply sources.

"Feed Trade Manual", edition 6, is available for $5 from National Miller Publications, Inc., 6 E. McDonald Rd., Prospect Heights, Ill.

'Dairy Microbiology' useful as reference text

Comprehensive book catalogs important characteristics of organisms found in dairy products, plus their pertinence to dairy processing. Initial chapters classify the organisms taxonomically, describe methods of controlling and destroying these microbes, and methods of examining dairy products for organisms. Subsequent chapters are devoted to problems of the individual dairy products themselves.

"Dairy Microbiology", 492 pages, can be obtained by remitting $10 to Prentice-Hall, Inc., Englewood Cliffs, N. J.

Thirty-seven experiments illustrate biochemical research techniques

Authored by Dr. Robert W. Cowgill and Dr. Arthur B. Pardee, this text presents 37 experiments illustrating both principles and procedures of biochemical research techniques. Included are some of the most powerful tools now known in this field. Divided into three parts, Part I provides physical chemical methods for separation and identification of biologically important compounds. Part II deals with biochemistry of enzymes and includes methods for enzyme isolation and assay. Part III goes into radioactive isotope tracer techniques.

"Experiments in Biochemical Research Techniques", 189 pages, can be obtained by remitting $3.50 directly to John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y.

Publish research findings on preservation of meat using irradiation and antibiotics

Three papers on research results of irradiation and antibiotics used in preserving meats have been published. "Relation of Methional to the Odor of Irradiated Meat", by L. A. Wittings and O. F. Batzer, reports results of studies on the chemical nature of undesirable odors which result from this means of preservation.

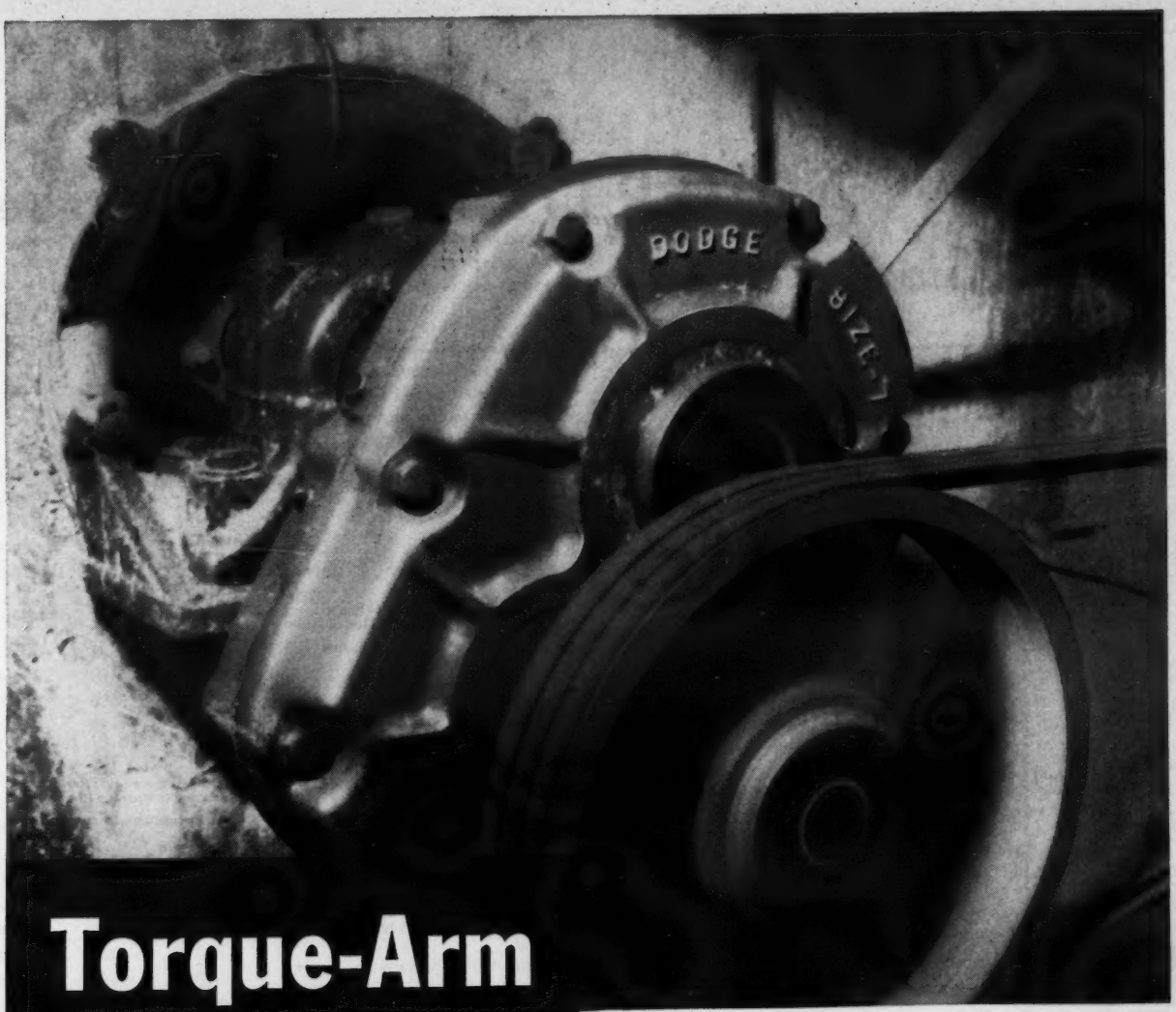
Two other papers concern bacteriological aspects of the use of gamma irradiation to preserve fresh beef. They are "Ionizing Radiation in Processing Meat and Dairy Products", by C. F. Niven, Jr., and "Complementary Action of Antibiotics and Irradiation in the Preservation of Fresh Meats", by C. F. Niven, Jr., and W. R. Chesbro.

Three papers on the effects of irradiation and antibiotics on preservation of meats are available from H. A. Armstrong, Division of Information Service, American Meat Institute Foundation, 939 E. 57th St., Chicago 37, Illinois.

Anhydrous ammonia, liquor for foods and feeds

Technical data book, 68 pg, lists chemical and physical properties, specifications, unloading and storage methods, analytical procedures for anhydrous ammonia and ammonia liquor. Includes applications in beverages, foods, and feeds. "Ammonia" available on company letterhead request from Nitrogen Div., Allied Chemical & Dye Corp., Dept. ALA, 40 Rector St., New York 6, N.Y.

Other reviews of catalogs, bulletins, books, data sheets, etc. are found throughout the magazine. Many advertisements also mention availability of this type of literature.



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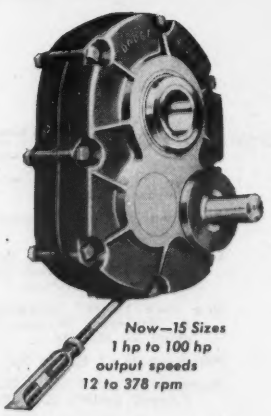

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Unit is driven through V-belt drive. Stock Taper-Lock Sheaves prescribed for each job permit speed ratios required. Tri-Matic Overload Release and backstop available, if desired. Dodge Torque-Arm is America's most complete line of shaft-mounted Speed Reducers. Ask your Dodge Distributor—or write us.

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5962 on Reader Service Slip

ADVERTISERS in this issue

A

Ac'gent-International Division of International Minerals & Chemical Corp. 43
Alan Wood Steel Company 83
Alemite Division of Stewart-Warner Corporation 79
Algin Corporation of America .. 49
Allis-Chalmers, Industrial Equipment Division 88
American Spice Trade Association 12
American Steel & Wire Division, Cyclone Fence Department, United States Steel Corporation 52
Armstrong Machine Works 58
Atlas-Pacific Engineering Company, Inc. 21

B

Bakelite Company, Division of Union Carbide Corporation .. 67
Battle Creek Packaging Machines, Inc. 62
Bausch & Lomb Optical Co. 85
Bliss Company, E. W., Can Machinery Division 71
Bowser Inc. 56
Buffalo Weaving & Belting Co., Inc. 90
Burt Co., F. L. 23
Buschman Co., The E. W. 23
Butler Manufacturing Company 98

C

Cambridge Wire Cloth Co., The 70
Carpenter Steel Company, The, Alloy Tube Division 80
Chevrolet Division of General Motors 99
Chisholm Ryder Co., Inc. 16
Clayton Manufacturing Company 11
Cleveland Vibrator Company, The 14
Clinton Corn Processing Company 42
Consolidated Products Division of National Dairy Products Corp. 44
Continental Can Company 64, 65
Crane Co. 82
Crucible Steel Company of America 77
Curtiss-Wright Corporation, Electronics Division 11
Cyclone Fence Department, American Steel & Wire Division, United States Steel Corporation 52

D

Distillation Products Industries, Division of Eastman Kodak Company 20
Dodge Manufacturing Corporation 101
Dodge & Olcott, Inc. 46
Dorr-Oliver Incorporated 56
Dow Chemical Company, The 74, 75
Dow Corning Corporation 23, 35

E

Eriez Mfg. Co. 72
Exact Weight Scale Co., The 69

F

Fairbanks, Morse & Co. 13
Fenco, Inc. 12
Fisher Scientific 88
Flavorex Co. 20
Florasynth Laboratories, Inc. 5
Food Machinery and Chemical Corporation, Canning Machinery Division 53
Foxboro Company, The 87
Frick Co. 39
Fritzsche Brothers, Inc. 3

G

G and H Products Corporation 75
Gallaher Company, The 96
Gaylord Container Corporation, Division of Crown Zellerbach Corporation 10
Givaudan Flavors Inc. 44
Glycerine Producers' Association ..... 3rd Cover
Grinnell Company, Inc. 22

H

Heil Co., The 58
Hercules Powder Company, Huron Milling Division, Virginia Cellulose Department 47
Hetherington & Berner Inc. 88

I

Ingersoll-Rand 92
International Salt Co. 17

J

Jamison Cold Storage Door Co. 93
Johns-Manville 4

L

Ladish Co., Tri-Clover Division 89
La Porte Mat and Mfg. Co. 96
Lathem Time Recorder Co. 38
Lift Trucks Incorporated 39
Link-Belt Company 92
Liquidometer Corp., The 84
Lumenite Electronic Company 12

M

Magnesium Company of America, Tobey Aluminum Div. 78
Manton-Gaulin Manufacturing Co., Inc. 55
Metals Disintegrating Co., Inc. .. 41
Minnesota Mining and Manufacturing Co. 68
Morehouse-Cowles, Inc. 73
Morton Salt Company, Industrial Division 50
Moto-Truc Co., The 91

N

National Business Publications, Inc. 37
Niagara Blower Company 97

O

Oakite Products, Inc. 78
Oilgear Company, The 6

P

Palmer Thermometers, Inc. 86
Pfaudler Co., The 100
Pittsburgh Corning Corporation ..... 2nd Cover
Powr-Pak, Inc. 54
Pulverizing Machinery Division, Metals Disintegrating Co., Inc. 41
Putman Publishing Company 22, 39, 66

R

Rietz Manufacturing Co. 52
Ritter & Co., F. 24

S

Scientific Oil Compounding Co., Inc., Cunilate Division 12
Screw Conveyor Corporation 92
Sellers Injector Corporation 23
Sheffield Chemical, A Division of National Dairy Products Corporation 8
Shuford Mills, Inc. 38
Simplicity Engineering Company 57
Southwestern Engineering Company, Separator Division 54
Spraying Systems Co. 58
Staley Mfg. Co., A. E. 51
Stewart Warner Corporation, Alemite Division 79
Sturtevant Mill Company 59
Sunkist Growers Exchange, Industrial Sales Division, Products Department ..... 4th Cover
Sutton, Steele & Steele, Inc. 72

T

Takamine Laboratory Division of Miles Laboratories, Inc. 45
Taylor Instrument Companies 40
Thermo King Corp. 94
Towmotor Corporation 95
Tube Turns Plastics, Inc. 92

U

Union Carbide Corporation, Bakelite Company Division 67
Union Steel Products Company 9
U. S. Stoneware, Plastics and Synthetics Division 81
United States Gasket Plastics Division of the Garlock Packing Company 14
United States Steel Corporation, Cyclone Fence Department, American Steel & Wire Division 52
Universal Oil Products Company 49
Upco Company, The 38

V

Vilter Manufacturing Company, The 36

W

Wallace & Tiernan Incorporated 86
Walworth 15
Weigh Right Automatic Scale Company 38
Western Condensing Company .. 48

Y

Yarnall-Waring Company 18, 19

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DECEMBER 1957

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5802	5826	5850	5874	5898	5922	5946
5803	5827	5851	5875	5899	5923	5947
5804	5828	5852	5876	5900	5924	5948
5805	5829	5853	5877	5901	5925*	5949
5806	5830	5854	5878	5902*	5926	5950
5807	5831	5855	5879	5903	5927	5951
5808	5832	5856	5880	5904	5928	5952
5809	5833*	5857	5881	5905	5929	5953
5810	5834	5858	5882	5906	5930	5954
5811	5835	5859	5883	5907	5931	5955
5812	5836	5860	5884	5908*	5932	5956
5813*	5837	5861	5885	5909	5933*	5957
5814	5838	5862	5886	5910	5934	5958
5815	5839	5863	5887	5911	5935	5959
5816	5840	5864	5888	5912	5936	5960
5817	5841	5865	5889	5913	5937	5961*
5818	5842	5866	5890	5914	5938	5962
5819	5843	5867	5891	5915	5939*	5963*
5820	5844	5868	5892	5916	5940	
5821	5845	5869	5893	5917	5941	
5822	5846	5870	5894	5918	5942	
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that's interesting

Beer drinking cattle

A classy young Holstein bull recently quaffed 15 bottles of beer, calmly looked his handlers squarely in the eye, and strode into the arena to

win a championship. Cattle breeders point out that giving beer to show cattle is a common practice. It fills them out in front of the hips and "picks them up a bit".

Feed additives business

The feed additive field in this country is becoming a substantial business, with 1957 volume estimated at $85 million. As in raising food crops with chemical fertilizers, modern nutrition of animals demands the addition of ingredients obtained through chemical processes.

Fish poison peril

A medical researcher warns that ocean fish are becoming increasingly poisonous, and that this offers a possible threat to the world's food supply. Areas most seriously affected are Japan, the Philippines, and Hawaii. It has been decided that the poison is not bacteriological, but apparently chemical — probably an alkaloid which develops within the fish.

For years, makers of candies, flavors, cough syrups, lozenges, lotions and other food, drug and cosmetic preparations have used Glycerine to provide humectant, demulcent or solvent action. Recent research with new thickening agents indicates that these properties of Glycerine will soon be extended to a whole new range of food and drug preparations.

Glycerine has been known for years to be compatible with conventional water soluble gums and gelling agents such as Gum Arabic and Karaya. New studies show that Glycerine is also compatible with a majority of the new synthetic gums. In most cases, Glycerine supplements the bodying action of these gums, and the resultant formulations are relatively unaffected by freezing and thawing.

Other fields, too, will benefit from this compatibility of Glycerine. Nontoxic lubricants are now possible. Important improvements in printing inks, grinding and polishing pastes, gasket seals—all making use of Glycerine's unique balance of properties—are promised.

The versatility that has won such wide acceptance for Glycerine in the past continues to open new doors to chemical progress. In paints, foods, pharmaceuticals, packaging . . . for tomorrow's surge of specialties . . . in new formulations, reactions and processes, nothing takes the place of Glycerine.

This balanced group of properties keeps Glycerine's usefulness growing

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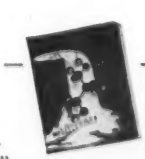

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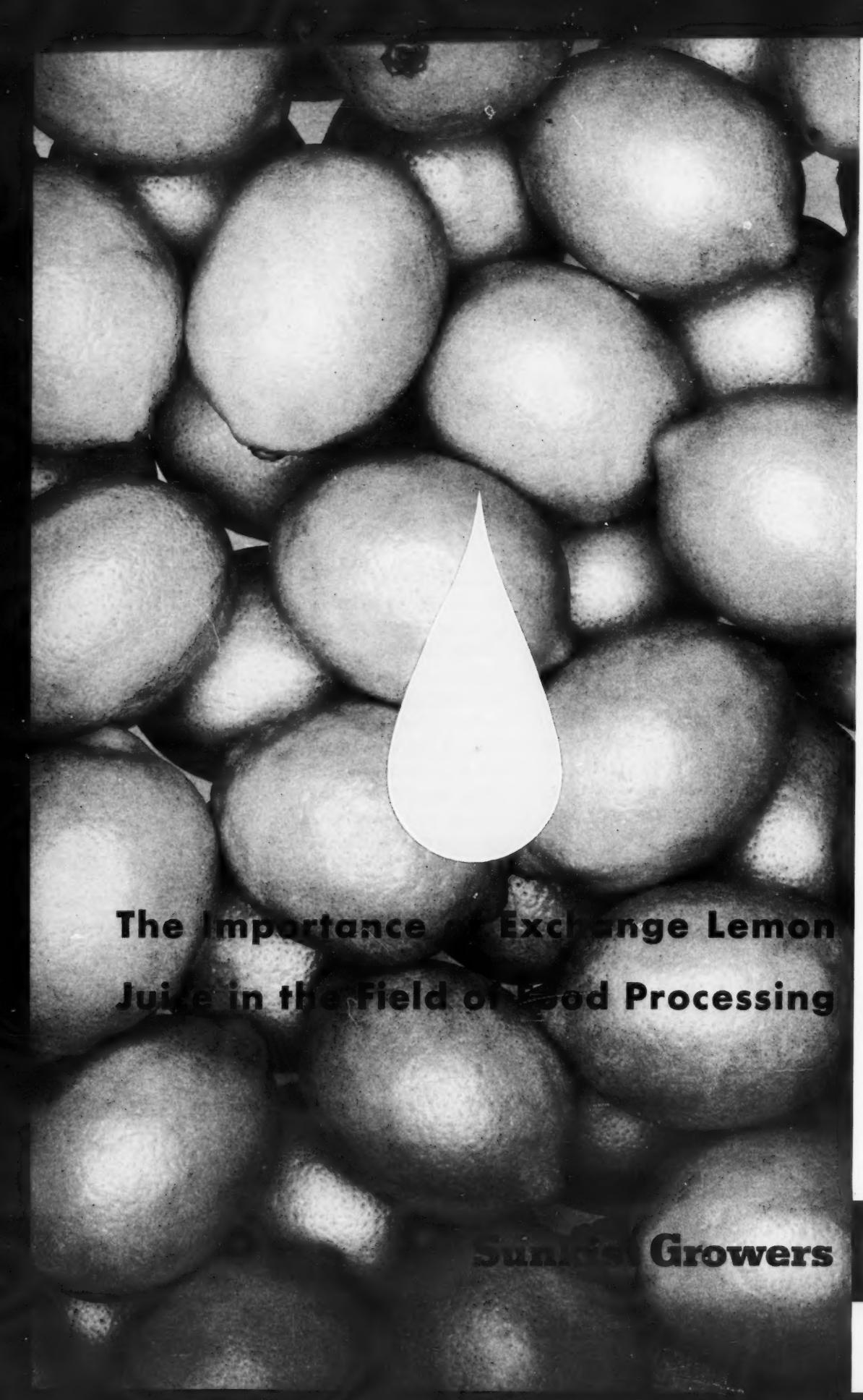

The Importance of Exchange Lemon Juice in the Field of Food Processing

Concentrated lemon juice plays a matchless role in the production of quality food products. Look at these established and indicated uses of lemon juice...

In baby foods to adjust acidity and improve quality.

In canned figs to increase acidity, reduce autoclave temperature and to improve flavor and texture.

In prune juice to improve flavor and palatability.

In fruit nectars (pear, peach, apricot and pineapple) to improve flavor and palatability.

In low acid fruits to improve flavor and texture and shorten processing time.

In canned vegetables (artichokes, onions, mushrooms, etc.) to adjust acidity.

In mayonnaise and salad dressings to improve flavor and storage life and to permit taste acidity adjustments to any desired level.

In cocktail sauces to improve flavor.

In vegetable juice cocktails to improve flavor.

In low sodium diet products to use as a salt replacement.

In frozen fruits to prevent browning.

In pared or diced fruits and vegetables (for distribution to institutional outlets) to prevent browning.

In fruits and vegetables to prevent browning during the interval preceding heat processing.

In frozen sea foods (especially those high in oil) to preserve freshness.

In breaded shrimp to improve flavor and preserve freshness.

In canned sea foods to improve flavor (and in some cases the color).

In fruit pie fillings as an acidulant.

In pure preserves and jellies as an acidulant.

In jellied salads and aspics as an acidulant.

In fruit drinks and fruit flavored beverages as an acidulant.

In ascorbic-treated foods to potentiate and to increase the ascorbic acid's effectiveness. Ingredients in lemon juice act synergistically with ascorbic acid. Also, lemon is an ideal protective carrier for ascorbic acid, protects it against deterioration and increases its penetration and absorption.

Exchange Concentrated Lemon Juice is an asset to your product...a distinction to its label. Let us prove this with an actual product test.

Sunkist Growers

Exchange

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